

UNIFORMED SERVICES
UNIVERSITY
OF THE HEALTH SCIENCES

JOURNAL

2003 EDITION



in Harm's Way"



EDITOR-IN-CHIEF:
MARY A. DIX

VICE PRESIDENT FOR ADMINISTRATION AND MANAGEMENT

RELEVANCE • READINESS • OPTIMIZATION

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August 18, 2004

Editor's Foreword

Doctor Zimble's performance-based leadership, medical readiness expertise, simulation technology-oriented educational programs, long-term commitment to ensuring force health protection, and vigilant recognition of the global threat of emerging infectious diseases serve as the hallmarks of his distinguished civilian career. Directly due to Doctor Zimble's strategic vision, leadership and dedicated service, the Department can now boast of USUHS as the Academic Health Center for the Military Health System; an asset that continues to garner global recognition for its military unique medical readiness training and its positive contributions to the security of our Nation in the critical areas of National Medical Preparedness and Public Health.

For these and his many other contributions (as the President of the Uniformed Services University of the Health Sciences, USUHS, from July 1991 to August 2004), I take great pleasure in presenting the Department of Defense Medal for Distinguished Civilian Service.

- **The Honorable Donald Rumsfeld, Secretary of Defense,**
Citation to Accompany the Award of the DoD Medal for
Distinguished Civilian Service, Presented to the USU
President, on August 2, 2004.

Mission Accomplishment. Once again, directly due to the on-going and tremendous support of the Surgeons General of the Uniformed Services, the Office of the Secretary of Defense, and the Congress of the United States, the *2003 Edition of the USU Journal* documents that the Uniformed Services University of the Health Sciences (USU) continues to meet, or exceed, its Congressionally established and Department of Defense (DoD)-directed mission to provide continuity and leadership and ensure medical readiness and continuing education for the Military Health System (MHS) through the provision of career-oriented, uniquely trained physicians, advanced practice nurses, and scientists and specialized educational training, exercises and research to meet the combat, humanitarian, and peacetime health care requirements of the MHS.

Relevance - Readiness - Optimization. Preparing each year for the next Edition of the USU Journal is an on-going assessment process of collecting data and summarizing events that focuses on: program *relevance*; the University's strategic objectives (to provide continuity and leadership and ensure medical *readiness* for the MHS); stewardship (*optimization*); and, accountability for established strategic objectives. Section I of the *2003 Edition of the USU Journal* provides an overview of one year's accomplishments across the multiple programs and activities at the University.

As this year's assessment process unfolded, it became quite evident that good fortune had, indeed, smiled upon USU when President Zimble took over the *helm*, some 13 years ago. The nomination package for the above mentioned medal was submitted by the **Honorable Everett Alvarez, Jr., J.D., Chairman, USU Board of Regents**, through the **Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense, Health Affairs**, to the **Honorable David S.C. Chu, Ph.D., Under Secretary of Defense, Personnel and Readiness**, who signed and forwarded the documentation for final approval by the **Honorable Donald Rumsfeld, Secretary of Defense**. The narrative statement for the DoD Medal for Distinguished Civilian Service succinctly summarizes why the *2003 Edition of the USU Journal* has been dedicated to President Zimble; his grateful USU Family wishes him *fair winds and following seas*.

NOMINATION STATEMENT

For exemplary meritorious civilian service during his 46 years of Federal service, **James A. Zimble, M.D., VADM, USN (Ret.)**, is nominated for the Department of Defense (DoD) Distinguished Civilian Service Award. Performance-based leadership, medical readiness expertise, simulation technology-oriented education, a long-term commitment to ensuring force health protection, and vigilant recognition of the global threat of emerging infectious diseases serve as the hallmarks of his distinguished civilian career. For the past 13 years, Doctor Zimble has provided unparalleled benefits for the Military Health System (MHS) as the President of the Uniformed Services University of the Health Sciences (USUHS). The significance of Doctor Zimble's accomplishments is evidenced by their immeasurable impact on the National Security of our Nation in the critical areas of National Medical Preparedness and Public Health.

Performance-Based Leadership. In 1991, when Doctor Zimble retired as the 30th Surgeon General of the Navy and assumed leadership as the fourth President of USUHS, the University had not as yet coordinated a systematic process for strategically focusing on its *raison d'être*, developing its intellectual content, or reporting and assessing its accomplishments. Doctor Zimble initiated strategic planning and assessment processes that focused on mission accomplishment and the annual achievements of the 1,824 members of the USUHS community. Today, due to: the continued involvement and strengthening of the assessment and data collection processes; the increased availability and accuracy of reported data; and, the remarkable accomplishments, contributions, and cooperation of the USUHS faculty, staff, students, and alumni, the University now provides one of the first comprehensive, performance-based annual reports to the Office of the Secretary of Defense (OSD). In addition to receiving maximum accreditation from 13 separate accrediting entities, during 2003, USUHS received the maximum term of ten years of accreditation with commendation from the Middle States Commission on Higher Education. The University has also succeeded in the recruitment and retention of qualified faculty and staff; this effective management of human capital resulted through Doctor Zimble's successful efforts to develop and implement faculty salary schedules and pay instructions, solidify OSD confirmation of USUHS' Title 10 authority, and clarify executive level pay limits. By 1996, the Graduate School of Nursing (GSN) had been established, officially recognized by OSD, and was providing uniquely qualified advanced practice nurses for the MHS. The Joint Meritorious Unit Award was presented to Doctor Zimble in 2000 and officially recognized the multiple products and services of USUHS and their generation of cost avoidance. For example, during 2003, \$29.3 million of cost avoidance was generated for the MHS: 154 USUHS uniformed and civilian faculty members documented 147,607 hours of patient care in Military Treatment Facilities; the USUHS Office of Continuing Education for Health Professionals, nationally accredited by five entities, sponsored 719 continuing medical and nursing education activities for 6,600 DoD physicians and nurses; the Military Training Network, recognized as a Regional Training Center by the American Heart Association and the American College of Surgeons, through its resuscitative and trauma medicine training programs for DoD affiliates, eliminated training costs and travel for 223,735 DoD personnel; and, the USUHS Graduate Education Programs granted advanced degrees to 41 uniformed officers. Through these initiatives, Doctor Zimble gained recognition and literally transformed expectations and attitudes for USUHS as it evolved into the Academic Center for the MHS.

Focused Medical Readiness Expertise. Doctor Zimble evidenced a total focus on the *medical readiness requirements* of the Uniformed Services. He understood and met the readiness requirements for military-unique, integrated curricula and educational programs grounded in a multi-Service environment. Today, USUHS prepares its career-oriented physicians, advanced practice nurses, and scientists for the practice of health care in contingency environments; students are provided comprehensive backgrounds in tropical medicine and hygiene, parasitology, and the use of epidemiologic methods and preventive medicine (USUHS currently averages 130 hours of study in preventive medicine, compared to 13 hours found in civilian SOMs). USUHS alumni possess, at graduation, the essential knowledge, skills, and attitudes required during Joint Service deployments. Coordinating with the Surgeons General of the Uniformed Services, Doctor Zimble ensured that relevant knowledge in the psychological stresses of combat and trauma and the medical effects of

nuclear, chemical, and biological weapons and extreme environments were integrated throughout the USUHS educational programs. His oversight and direction of resources toward USUHS' internationally recognized operational exercises, *Operations Kerknesner* and *Bushmaster*, ensured their flexibility to meet the ever-evolving requirements of medical readiness. His meticulous focus has secured recognition throughout the uniformed and civilian health care communities for providing uniformed physicians, advanced practice nurses and scientists with a better understanding of, commitment to, and preparation for the practice of health care in austere contingencies.

Successful Implementation of Simulation Technology Training with Distance Capabilities.

Doctor Zimble provided visionary leadership in the establishment of the National Capital Area Medical Simulation Center (SIMCEN). The SIMCEN is a world-class, cutting-edge medical education facility, and serves as a template for more than 35 educational institutions currently attempting to employ similar simulation technology into their own medical education programs; the SIMCEN has been featured in a Discovery Channel Series and by major newspapers and professional journals. Today, this teaching facility is unique among the Nation's limited simulation centers because five state-of-the-art teaching components are included under one roof: standardized patients; multi-media, interactive, clinical case presentations on LAN or web-based CD-ROMS; virtual reality software applications; computerized mannequin simulators; and, video-teleconferencing and distance education capabilities. The SIMCEN uses technology and actors posing as patients to provide students and residents instruction on readiness skills and focused pre-deployment training for wartime, peacekeeping, and humanitarian missions. Through over 10,000 encounters, students and residents have gained experience in developing decision-making skills, familiarizing themselves with instruments and equipment and refining techniques and procedures. Recently, the SIMCEN participated in the development of an Anthrax Vaccine Immunization Provider Response Program with the Walter Reed Army Medical Center, Johns Hopkins University, and the Centers for Disease Control. Today, Doctor Zimble has envisioned and initiated the design for a Computer-Aided Virtual Environment (CAVE). The CAVE will be an immersive, virtual reality environment suitable for simulating mass casualty, triage and/or bio-chemical training scenarios where students will be physically immersed in a virtual environment with either virtual, live, or high fidelity computer-driven human patient simulators. These training scenarios will be linked via Internet-2 to other geographic locations so that other uniformed or reserve responders can cost-effectively participate in the same training scenario.

Formidable Support for Force Health Protection. Doctor Zimble recognized that USUHS has a significant role in force health protection and that the training USUHS students receive in combat and peacetime health care is essential to the MHS. The USUHS SOM Graduate Education Programs in Public Health, with their emphasis on community health, rank sixth in the Nation according to U.S. News & World Report's 2004 rankings of America's Best Graduate Schools on the list of the top 10 community health master or doctoral programs. The military relevant research efforts at USUHS serve as critical components to force health protection and provide multiple opportunities for collaboration with USUHS' 4,031 off-campus faculty; USUHS research was recognized in Science as one of the top ten scientific breakthroughs of 2002; two USUHS researchers identified a photoreceptive net, a new light-detecting apparatus in the retina. These findings should ultimately allow uniformed personnel to remain awake longer with fewer detriments to performance and reasoning capabilities under battlefield conditions. As of April 2004, the USUHS SOM alumni average approximately 20 years of active duty service and represent 22.2 percent of the 11,901 physicians on active duty in the MHS. As reported by the Center for Navy Analysis, where the median length of non-obligated service for physician specialists in the MHS, not including USUHS SOM alumni, is 2.9 years; the median length of non-obligated service for USUHS SOM alumni is 9 years, making USUHS the recommended accession source for leadership positions in the MHS. Today, USUHS alumni are globally deployed and providing essential care for our Armed Forces in every theater of operation.

A Vigilant Role in National Security. In December of 1998 and 2001, the Association of American Medical Colleges confirmed the critical role of USUHS in National Security. USUHS is the one place where

physicians of tomorrow do get thorough preparation to deal with many contingencies, including the medical aspects of chemical and biological terrorism. USUHS students learn how nuclear, biological, and chemical agents act on the human body and what to do in the event of a suspected exposure. Through Doctor Zimble's vigilant oversight, USUHS' academic centers and research programs have established international credibility for: military unique medical expertise; communication and assessment of military medical humanitarian assistance training; addressing traumatic stress in uniformed and civilian health care communities; and, developing medical radiological countermeasures and providing unique training for the response to radiological emergencies. The American Medical Association has recognized that USUHS not only educates its own graduates, but also provides a significant national service through its continuing medical education courses for military physicians in combat casualty care, tropical medicine, combat stress, disaster medicine, and medical responses to terrorism; courses not available through civilian medical schools. Significantly, the USUHS SOM Emerging Infectious Diseases (EID) Graduate Education Program provides courses on the agents and effects of bioterrorism and is the only graduate program in the Nation to offer formal training in these critical areas.

Doctor Zimble was instrumental in achieving the extraordinary contributions described above. His exceptional accomplishments during his civilian career served to enhance public confidence and trust in the MHS. He is respected and admired throughout the Joint Services and within the Federal and civilian health care communities. His philosophy of ***Caring for Those in Harm's Way*** has been realized in our Federal University. I take great pleasure in recommending James A. Zimble, M.D., for the DoD Distinguished Civilian Service Award.

(The 2003 Edition of the USU Journal replaces the 2002 Edition as the source document for the University's responses to congressional, executive, and general requests for information.)

Mary A. Dix
Vice President for Administration
and Management and
Editor-in-Chief
USU Journal - 2003 Edition



Field Medicine

***“Learning
to care
for those
in
harm’s
way”***

RELEVANCE - READINESS - OPTIMIZATION

I want to extend my congratulations to you, the leadership and the faculty at the Uniformed Services University for your exemplary performance in receiving a ten-year accreditation with commendation from the Middle States Commission on Higher Education. This is a notable achievement, and it reflects a successful, long-term commitment to the highest levels of professional medical education for this Nation’s Military Health System. The quality of your graduates continues to serve as a testament to the quality of the teaching that was endorsed by the Middle States Commission. You and your staff continue to make significant contributions to our Nation’s military readiness and our national medical preparedness.

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The Honorable William Winkenwerder, Jr., M.D.,
Assistant Secretary of Defense, Health Affairs,
Letter to the USU President, July 22, 2003.

UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES JOURNAL

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I. RELEVANCE

Thank you for your letter and the information on the Uniformed Services University of the Health Sciences (USUHS) as well as the 2002 Edition of the USU Journal. It is gratifying to see the University provide continuity and leadership for ensuring medical readiness. Alumni are highly trained and will no doubt continue their tradition of providing first-rate Military Health System support. The Cost Avoidance Fact Sheet is further evidence of your commitment and dedication... Please convey to Admiral Zimble my deep appreciation for the hard work he and the people of USUHS are doing for those of us in uniform.

- General Richard B. Myers, Chairman of the Joint Chiefs of Staff, Letter to the University, November 20, 2003.

Institutional Integrity. The foundation for the role of the University lies in its charter as the Nation's federal health services university, committed to excellence in military medicine and public health. Through its educational programs, students gain the knowledge and develop the necessary skills to serve as military medical officers, advanced nurse practitioners and anesthetists, and biomedical/public health scientists in the Department of Defense and the Public Health Service. The rigor of the course work is a hallmark of excellence at the institution and fulfills the primary mission of the University... The climate of academic inquiry and engagement, academic and intellectual freedom, and mission accomplishment are regularly monitored through institutional assessment.

- Evaluation Team of the Middle States Commission on Higher Education, Report to the Faculty, Administration, Trustees, and Students of the Uniformed Services University of the Health Sciences, April 2, 2003.

As the Executive Agent of the Uniformed Services University of the Health Sciences (USUHS), I would like to comment on the extraordinary achievements of the University... USUHS graduates, with retention averaging twenty years of active duty service, now represent over 22 percent of the total physician officers on active duty in the Armed Forces. And, as provided to the Congress during 2002, the median length of non-obligated service for physician specialists in the Military Health System, not including USUHS graduates, is 2.9 years; however, the median length of non-obligated service for USUHS graduates is 9 years. USUHS graduates are exceeding the original expectations of Congress when the University was established, thus ensuring physician continuity and leadership for the Military Health System... The USUHS-unique training centered in preventive medicine and combat-related health care is essential to providing superior force health protection and improving the quality of life for our service members, retirees, and families. USUHS also provides a significant national service through its continuing medical education courses for military physicians in combat casualty care, tropical medicine, combat stress, disaster medicine, and the medical response to weapons of mass destruction (WMD).

- Vice Admiral Michael L. Cowan, Surgeon General of the Navy, Testimony before the Senate Appropriations Committee, Subcommittee on Defense Health, April 30, 2003.

USU's Public Health Program, with its emphasis on community health, ranks sixth in the Nation according to U.S. News & World Report's 2004 rankings of "America's Best Graduate Schools... USU's program ranked just below Tufts University, the Medical College of Wisconsin, Northwestern University, Oregon State University and the University of Rochester on the list of the top 10 community health master or doctorate programs."

- USU Medicine, *U.S. News & World Report Ranks USU Graduate Program in Top Six*, Fall 2003, page 5.

Due to both the extensive military training provided in the multi-Service environment of USUHS and the extraordinary retention rates of the USUHS graduates who serve, on average, at least 18.5 years, USUHS has met, or has exceeded, the goals set by Congress.

- Resolution Number 95, The Eighty-Fifth National Convention of **The American Legion**, August 26-28, 2003.

The accrediting commission pointed out in its summary findings to the University that the mission and philosophy of the USUHS Graduate School of Nursing (GSN) is grounded in the University's mission and in the mission of the Uniformed Services. The GSN curriculum is designed to be specific to the unique mission of military service nurses: to serve in times of war and peace.

- The Honorable Daniel K. Inouye, United States Senator from Hawaii, Congressional Record, *Tribute to Dr. Faye Glenn Abdellah*, May 16, 2002, pages S4488-S4489.

Thank you for the 2002 Edition of the USU Journal and for all you do ... to make this report a reality.

- **The Honorable Robert J. Dole, Former United States Senator from Kansas and Senate Majority Leader,**
Letter dated November 4, 2003.



*Meeting
the
Special
Needs
of the
Military
Health
System*



I. THE UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES (USU)

Learning to Care for Those in Harm's Way

The University community completed the Year 2003 with renewed dedication. A recognized vital and integrated component of the Military Health System (MHS), USU continues to provide essential support to *Force Health Protection* through its unique training centered in preventive medicine and combat-related health care. In accordance with strategic guidance, the University continues to successfully focus on: **RELEVANCE** - the critical, or core relevance, of its essential mission to provide continuity, leadership, and responsiveness to the special needs of the MHS; **READINESS** - the provision of uniformed physicians, advanced practice nurses, and graduate degree recipients who are uniquely qualified to practice and address combat casualty care, tropical medicine, combat stress, disaster medicine, and the medical response to unconventional, disaster, or operational contingencies; and, **OPTIMIZATION** - the cost-effective management of its resources to ensure the generation of annual cost avoidance for the MHS through its multiple, fully accredited programs (estimated cost avoidance during 2003 was \$29.3 million).

ESTABLISHMENT, DEVELOPMENT, AND GOVERNANCE

The Uniformed Services Health Professions Revitalization Act of 1972 Establishes the University. Public Law 92 - 426, *the Uniformed Services Health Professions Revitalization Act of 1972*, established the University as a separate agency within the Department of Defense (DoD). Planning for the development of USU began, in 1974, when the **President of the United States, Richard M. Nixon**, appointed a Board of Regents and the University's first President, **Anthony R. Curreri, M.D.** Initial efforts were focused on establishing the USU School of Medicine (SOM) as the University's first academic program. (A copy of Public Law 92 - 426 is at Appendix A.)

Collaborative Efforts by the Joint Services and Civilian Medical Communities in the Development of the University. The initial development of objectives for the USU SOM was accomplished through the combined efforts of the USU Board of Regents; the Board of Regents' Educational Affairs Committee; **USU President, Anthony R. Curreri, M.D.**; the first **Dean of the USU SOM, Jay P. Sanford, M.D.**; and, special working groups. Activities used to develop these objectives included committee meetings, retreats, and consultation with a variety of experts from military medicine and civilian medical organizations and institutions. Individuals and groups consulted included: **the Surgeons General** of the Army, Navy, and Air Force; **Chiefs of the Medical Departments/Services** of the Army, Navy, and Air Force; **physicians from** the Walter Reed Army Medical Center, the National Naval Medical Center at Bethesda, the Malcolm Grow United States Air Force Medical Center at Andrews Air Force Base, the Wilford Hall United States Air Force Medical Center, the United States

Army Academy of Health Sciences, the Sheppard Air Force Base Academy of Health Sciences, the Brooke Army Medical Center, and the Armed Forces Institute of Pathology; **the Service Secretaries** from both the Air Force and the Navy; the Association of American Medical Colleges (**AAMC**); the American Medical Association (**AMA**); the Liaison Committee on Medical Education (**LCME**); the Department of Health, Education, and Welfare (**HEW**); the National Institutes of Health (**NIH**); and, the following **Universities**: George Washington University; Georgetown University; and, Howard University. The fine tradition of the University's identifying and responding to the special needs of the Uniformed Services has been an on-going process since 1974.

DoD Directive 5105.45. Significant changes in the USU governance structure resulted from actions taken, during 1991. On April 15, 1991, the Secretary of Defense revised the DoD Directive for Health Affairs, 5136.1, to delegate responsibility for the University from his office to the Assistant Secretary of Defense for Health Affairs (ASD/HA). The authority to appoint the President of the University was retained by the Secretary of Defense. On April 19, 1991, the DoD Directive for USU, 5105.45, was updated to reflect those changes and to define in detail the mission, organization, responsibilities, functions, relationships, authorities, and governance of the University. In a memorandum dated May 3, 1991, the ASD/HA re-delegated the authority for the day-to-day management of the University to the USU President; the current delegation of authority to the USU President for the on-going management of the University is also included in DoD Directive 5105.45. (A copy of the most current revision of DoD Directive 5105.45, dated March 9, 2000, is at Appendix A.)

Board of Regents' Charter. Prior to 1991, the USU Board of Regents (BOR) had been an independent policy-making body; it is now an advisory committee to the Secretary of Defense. A Charter for the BOR was approved by the Office of the Secretary of Defense (OSD) on April 1, 1991; the most current edition of the BOR Charter is dated April 4, 2003. The Charter defines the objectives and scope of the BOR to: 1) provide advice and guidance to the Secretary of Defense through the ASD/HA for the operation of USU; and, 2) assure that the University operates in the best tradition of academia and is in compliance with the appropriate authorities on accreditation. The USU administration and faculty provided substantial input into the revision of both the USU DoD Directive and the BOR Charter. As a result, the administrative/governance documents, of 1991, reflect the coordinated efforts of the ASD/HA, the BOR, the USU administration and activity heads, SOM department chairs, the SOM Faculty Senate, and the Dean's Executive Advisory Committee. In addition, during this process, the Acting Dean of the SOM coordinated with, and briefed, the LCME and the Commission on Higher Education of the Middle States Association of Colleges and Schools to ensure compliance with the University's accrediting entities on issues regarding governance and administration. To codify the Board's activities, BOR Bylaws were written, during 2000, under the leadership of **Lonnie R. Bristow, M.D., Chair, USU Board of Regents**. On February 6, 2001, the BOR Bylaws were approved. (Copies of the most current BOR Charter and Bylaws are at Appendix A.)

USU and the 1998 Defense Reform Initiative. In November of 1997, the **Honorable William Cohen, Secretary of Defense**, substantiated his support of the University by including USU as part of his Fiscal Year 1998 Defense Reform Initiative (DRI). Program Budget Decision (PBD) 711 issued on December 17, 1997, outlined the DRI and moved USU from under the direct oversight of the Office of Health Affairs, Office of the Secretary of Defense (OSD), to the collective oversight of the Surgeons General of the Army, Navy and Air Force. The PBD ensured manpower and funding for USU and established the Surgeon General of the Navy as the Executive Agent for program, budget, and funding execution responsibilities. ***The PBD also directed that the University's funding would continue to be programmed, budgeted, and executed within the Defense Health Program.***

The Establishment of the USU Executive Committee. The administrative process for fiscal matters was defined, during 1998, by the ASD/HA, in consultation with the USU BOR, the USU administration, and the Surgeons General. As a result, DoD Directive 5105.45 was updated, on May 17, 1999, to include the formal establishment of the USU Executive Committee (*to be composed of the three military Surgeons General; membership, throughout 2003, included: **Lieutenant General James B. Peake, Surgeon General of the Army; Vice Admiral Michael L. Cowan, Surgeon General of the Navy; and, Lieutenant General George P. Taylor, Jr., Surgeon General of the Air Force***) to provide management oversight for the University. As outlined in DoD Directive 5105.45, the USU President reports through the Executive Committee to the ASD/HA. The Executive Committee, chaired by **Lieutenant General James B. Peake**, conducted meetings that focused on important fiscal and

administrative issues at the University. The USU Executive Committee and the USU Board of Regents have developed a close working relationship in a shared effort to enhance the fiscal and administrative programs at the University (a copy of the current Charter for the USU Executive Committee dated, December 18, 2000, is at Appendix A).

As the Executive Agent of the Uniformed Services University of the Health Sciences (USUHS), I would like to comment on the extraordinary achievements of the University... USUHS graduates, with retention averaging twenty years of active duty service, now represent over 22 percent of the total physician officers on active duty in the Armed Forces. And, as provided to the Congress during 2002, the median length of non-obligated service for physician specialists in the Military Health System, not including USUHS graduates, is 2.9 years; however, the median length of non-obligated service for USUHS graduates is 9 years. *USUHS graduates are exceeding the original expectations of Congress when the University was established, thus ensuring physician continuity and leadership for the Military Health System...* The USUHS-unique training centered in preventive medicine and combat-related health care is essential to providing superior force health protection and improving the quality of life for our service members, retirees, and families.

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy, Testimony before the Senate Appropriations Committee, Subcommittee on Defense Health, April 30, 2003.**

Responsibilities of the Navy as the Executive Agent for USU. As the Executive Agent, the Navy Surgeon General's Office provides oversight for the University's budgeting and programming activities. The DoD Directive 5105.45 further clarifies that the USU funding and personnel requirements will not be offset against the Navy Surgeon General's budget or work-year allocations; thus, USU funding remains within the Defense Health Program.

USU Employees Become Navy Employees. Section 7.2.1 of Directive 5105.45 also directs that USU civilian personnel authorizations will be under the purview of the DoD Executive Agent (Navy) and that USU civilian employees should be moved from OSD and carried on the rolls of the Department of the Navy. The USU civilian employees officially converted from OSD to Navy employees with the changing of the University's Subelement and Unit Identification Code at the end of Fiscal Year 1999. All official reporting documents reflect this change. An inclusive review of the USU personnel instructions to assure compliance with the Navy personnel instructions was completed by the USU Civilian Human Resources Directorate, during 2000; and, a Navy-conducted review and evaluation of the USU Civilian Human Resources Directorate was conducted on January 14-15, 2002. The Navy review team found that *the USU Civilian Human Resources Directorate was in compliance with the self-assessment requirements of SECNAV Instruction 12273.1, dated March 16, 1999, with no corrective actions required.*

Following the implementation of the Modern Defense Civilian Personnel Data System (MDCPDS), during August of 2001, both the USU government service/wage grade (GS/WG) and the USU administratively determined (AD) employees had to be manually reported as Navy civilian employees pending the revision of computer software, which occurred, during 2002. It was agreed that the Human Resource Services Center (HRSC) of Washington Headquarters Services (WHS) would continue to service the University for its personnel requirements, through 2002. By March of 2003, upon the completion of all software and coordination requirements, all USU personnel services had been placed under the purview of the Navy; and, payroll services were placed under the Navy payroll office, by mid-2003.

I want to extend my congratulations to you, the leadership and the faculty at the Uniformed Services University for your *exemplary performance in receiving a ten-year accreditation with commendation from the Middle States Commission on Higher Education*. This is a notable achievement and it reflects a successful, long-term commitment to the highest levels of professional medical education for this Nation's Military Health System. The quality of your graduates continues to serve as a testament to the quality of the teaching that was endorsed by the Middle States Commission. You and your staff continue to make significant contributions to our Nation's military readiness and our national medical preparedness.

- **The Honorable William Winkenwerder, Jr., M.D.,
Assistant Secretary of Defense, Health Affairs,** Letter
to the USU President, dated July 22, 2003.

A Strengthened Relationship Between USU and DoD. The evolving relationship between the USU and DoD, from 1991, through 2003, has proven beneficial to the University and the MHS. This new relationship has clarified and strengthened the position of the University, within the entire DoD structure. The expansion of the oversight role of the Executive Committee (the three military Surgeons General) over USU has proven to be quite positive in terms of strategically identifying the ever-changing requirements of the MHS and evaluating how USU is currently meeting the needs of its primary customers, the Surgeons General. One example of the successful relationship of USU with the Surgeons General and OSD was evidenced by the presentation of the *Joint Meritorious Unit Award* by the **Honorable William S. Cohen, the Secretary of Defense**, to the University, on December 11, 2000. In addition, on March 22, 2001, the **Honorable Donald Rumsfeld, the current Secretary of Defense**, also confirmed his on-going support for the critical mission of the University, when he wrote to the Chairman of the USU Board of Regents and stated that: **The Department takes great pride in the fact that the USUHS graduates have become the *backbone* for our Military Health System. The training they receive in combat and peacetime medicine is essential to providing superior force health protection... All of us in the Office of the Secretary of Defense place great emphasis on the retention of quality physicians in the military. The USUHS ensures those goals are met.**

USU BOARD OF REGENTS.

In terms of contributions provided during the conflict (in Iraq), upwards of 100 of our physician graduates served with distinction in the war. Their efforts ranged from providing frontline trauma surgery for coalition forces to caring for sick and injured Iraqi citizens and enemy prisoners of war. Alumni of the Graduate School of Nursing served as in-theater nurse-anesthetists and nurse-practitioners, as well as aboard the *USNS COMFORT*. Additional physician and nurse alumni provided rear echelon support throughout the medical evacuation system, including the critical care air transport systems and Landstuhl Regional Medical Center as well as stateside Army and Navy hospitals. Some of their efforts have been recounted in national and local newspapers and by radio and television stations, including the Washington Post, New York Times, Baltimore Sun, Wall Street Journal, Stars & Stripes, Los Angeles Times, Charlotte Observer, USA Today, Miami Herald, National Public Radio, and ABC-TV.

In terms of mission-oriented research, Dr. Hansan Alam, a University trauma surgeon, and his research team have evaluated a number of agents to control bleeding from wounds on the battlefield by medics and “buddy-care.” This work led to the development and fielding of a new aid bag that includes “QuikClot.” Fifteen thousand of these bags were issued to Marines fighting the war in Iraq.

- **USU Board of Regents 2003 Annual Report to the Secretary of Defense**, Cover Letter to the Secretary of Defense, June 30, 2003.

Membership of the Board of Regents. The USU Board of Regents (BOR) is an advisory committee governed by the Federal Advisory Committee Act (Public Law 92-463, Section 1), the General Services Administration Final Rule (41 C.F.R. Part 101-6), and Department of Defense Directive 5105.45. The nine members of the Board are distinguished academics, educators, health care providers and public servants; and, they are Presidential appointees confirmed by the United States Senate. As of April 2004, the USU BOR includes the following individuals: **Everett Alvarez, Jr., J.D., Chair; Linda J. Stierle, MSN, RN, CNAA, Vice Chair; Otis Webb Brawley, M.D.; L.D. Britt, M.D.; William C. De La Pena, M.D.; Sharon A. Falkenheimer, M.D.; Ikram U. Khan, M.D.; Vinicio E. Madrigal, M.D.; and, Lawrence C. Mohr, Jr., M.D.**

Newly Appointed Members of the BOR.

Sharon A. Falkenheimer, M.D., was confirmed by the United States Senate to be a Member of the USU Board of Regents on May 1, 2003; she was sworn in as a Regent on May 16, 2003. Doctor Falkenheimer is the President of Bioethics & Medicine, Inc., in San Antonio, Texas, and was recently appointed by the Secretary of Health and Human Services to serve on the Advisory Committee to the National Center for Environmental Health of the Centers for Disease Control. She also holds academic

appointments in the Department of Preventive Medicine and Community Health at the University of Texas Medical Branch in Galveston, and in the Department of Medical Humanities and Ethics at the University of Texas Health Science Center in San Antonio. Doctor Falkenheimer received her Doctor of Medicine Degree from the State University of New York Upstate Medical College and also holds Masters Degrees in Public Health and Bioethics. She is a retired United States Air Force Colonel, with over 26 years of service, and a graduate of the United States Air Force Academic Instructor School, the Air Command and Staff College, and the Air War College. During her career, Doctor Falkenheimer served in a variety of roles, including the Associate Residency Director for the United States Air Force Residency in Aerospace Medicine and the Director of International Medical Training at the United States Air Force School of Aerospace Medicine. Doctor Falkenheimer is a Fellow of the Aerospace Medical Association, an Academician in the International Academy of Aviation and Space Medicine, and a Fellow of the Center for Bioethics and Human Dignity.

Lawrence C. Mohr, Jr., M.D., was confirmed by the United States Senate to be a member of the USU Board of Regents on May 1, 2003; he was sworn in as a Regent on May 16, 2003. A White House Physician from 1987 to 1993, Doctor Mohr is currently a Professor of Medicine and Director of the Environmental Biosciences Program at the Medical University of South Carolina. Prior to his medical career, Doctor Mohr served as a field artillery officer in the United States Army. He retired with the rank of Colonel; and, his military decorations include the Defense Distinguished Service Medal, the Silver Star Medal, four awards of the Bronze Star Medal with two “V” devices for heroism in ground combat, the Purple Heart, two awards of the Meritorious Service Medal, the Air Medal, two awards of the Army Commendation Medal, the National Defense Service Medal, the Vietnam Service Medal, and the Republic of Vietnam Campaign Medal. Doctor Mohr received his Doctor of Medicine Degree from the University of North Carolina School of Medicine. His postdoctoral training took place at the Walter Reed Army Medical Center in Washington, D.C. Doctor Mohr has served on numerous government, scientific, and professional boards and committees. He lectures both nationally and internationally, has authored multiple scientific publications, and has edited two books: International Case Studies in Risk Assessment and Management and Biomarkers: Medical and Workplace Applications.

Ex Officio Members of the Board. In addition to the nine White House appointed members, the Board also has six *ex officio* members. These include: 1) **William Winkenwerder, Jr., M.D., M.B.A.**, the Assistant Secretary of Defense for Health Affairs; 2) **Vice Admiral Richard H. Carmona, M.D.**, United States Public Health Service, The Surgeon General of the United States; 3) **Lieutenant General James B. Peake**, the Surgeon General of the United States Army; 4) **Vice Admiral Michael L. Cowan**, the Surgeon General of the United States Navy; 5) **Lieutenant General George P. Taylor, Jr.**, the Surgeon General of the United States Air Force; and, 6) **James A. Zimble, M.D., Vice Admiral, USN (Retired)**, the President of USU (who serves as a non-voting member).

Advisors to the Board. **General Thomas R. Morgan, USMC (Retired)**, the former Assistant Commandant of the Marine Corps, serves as the Military Advisor to the Board. There are eight additional advisors to the Board: 1) the Dean, School of Medicine; 2) the Dean, Graduate School of Nursing; 3) the Commander, Wilford Hall Medical Center; 4) the Commanding General, North Atlantic Regional Medical Command and Walter Reed Army Medical Center; 5) the Commander, National Naval Medical

Center; 6) the Commander, Malcolm Grow Air Force Medical Center; 7) the Commander, Walter Reed Army Health Care System; and, 8) the Commander, Defense Medical Readiness Training Institute, in San Antonio, Texas.

Students must evolve from naive college seniors to highly competent physicians whom we can trust to take care of our families and ourselves. This transformation requires the highest form of education; these educators must be scholars.

Scholars do much more than teach facts from a textbook; they must inspire, they must teach students how to continue learning for the rest of their careers, they must implant inquisitiveness and teach the requisite tools of how to ask and answer questions of human life. Scholars must be near perfect role models. To be able to accomplish these critical tasks, scholars must practice scholarship. Scholarship encompasses: 1) discovery, 2) integration, 3) application, and 4) teaching. Scholars unable to discover, to integrate, and to apply new knowledge cannot effectively teach these young people how to become physicians. This principle has been the basic tenet of medical teaching since the Flexnarian Revolution nearly a century ago. It is how and why US medicine has become dominant in the world.

Among America's 126 medical schools, USU has a mission unlike any other. Medical education in other schools focuses on the individual down to their subcellular components. This purview is only a subset of the USU perspective. In support of the warfighter, USU must take a worldwide view to include preventive medicine and atypical medical care. Since US forces are expected to be deployed in every geographic and climatic region in the world, USU prepares its students for any and all circumstances.

Unlike most universities, USU encompasses a strong division of public health within the School of Medicine that gives our physician graduates a community perspective. Thus, in a single school, USU provides a medical education at the level of the molecule, the individual, the community, and the world. This all-inclusive approach meshes with the primary reason for USU's existence: to prepare career military medical officers for leadership roles in worldwide service.

- **USU Board of Regents 2003 Annual Report to the Secretary of Defense, June 30, 2003, Pages 1-2.**

The Board's Significant Role in Academic Affairs. The BOR has continuously played a prominent role in academic affairs at the University. Faculty appointments, promotions and organization, awarding of degrees, curriculum design and implementation, academic requirements for admission and graduation, and related matters vital to the academic well being of the University are all included in the definition of *academic affairs* as provided by DoD Directive 5105.45. The Directive clarifies it is DoD policy that **...consistent with the performance of the DoD mission and with established practices covering academic independence and integrity in the fields of medical and health sciences**

education, the Department of Defense recognizes the unique role of the USUHS Board of Regents in advising the Secretary of Defense. The Assistant Secretary of Defense for Health Affairs, the USUHS Executive Committee, and the President of the USUHS will be guided by the advice of the USUHS Board of Regents on academic affairs.

The Board's Duties Include the Final Review of Candidates for the USU President Prior to Selection by the Secretary of Defense.

University Presidents:

Anthony R. Curreri, M.D., was appointed by **President Nixon**, in 1974; he retired in 1976;

The Honorable David Packard, Acting President, served from November of 1976 through May 29, 1981;

Jay P. Sanford, M.D., served, as President, from May of 1981, through November 17, 1990; and,

James A. Zimble, M.D., has served since July 15, 1991, to the present.

The BOR also Reviews the Final Selections for the Deans of the School of Medicine and the Graduate School of Nursing Prior to their Selection by the USU President.

School of Medicine Deans:

Jay P. Sanford, M.D., was appointed as the first Dean, SOM, in May of 1975; he served, as Dean, through November 17, 1990;

Harry C. Holloway, M.D., served as the **Deputy Dean** from July 9, 1990 through June of 1992;

Nancy E. Gary, M.D., was appointed as Dean on June 28, 1992; she served, as Dean, through June of 1995;

Val G. Hemming, M.D., served as Interim Dean from July 2, 1995 through May 2, 1996; following a national search, he served, as Dean, from May 3, 1996 through May 19, 2002; and,

Larry W. Laughlin, M.D., Ph.D., was appointed as Dean on May 20, 2002, and continues to serve in that position.

Graduate School of Nursing Deans:

Faye G. Abdellah, Ed.D., Sc.D., RN, served as Acting Dean following the establishment of the GSN in 1993; following a national search, she was selected as Founding Dean, GSN, serving from May 17, 1996 through May 31, 2002; and,

Patricia A. Hinton Walker, Ph.D., RN, FAAN, was appointed as Dean on June 1, 2002, and continues to serve in that position.

The Board's Mission and Responsibilities. The Board's principal mission is to assure compliance with the University's accrediting authorities. The Regents approve academic titles for military and civilian members of the faculty. Additionally, upon the recommendation of the University's faculty and Deans, the Regents approve the granting of appropriate academic degrees to successful candidates. The BOR recommends the establishment of postdoctoral and postgraduate programs, technological institutes, and programs in continuing medical education for military members of the health professions. The Regents also recommend reciprocal education and research programs with foreign military medical schools. And, the BOR is significantly involved with the University's strategic planning process. On April 4, 1999, the BOR's Charter, which outlines the mission, membership, duties and responsibilities of the BOR, was revised and approved by the Office of the Secretary of Defense (OSD); the most current edition of the BOR's Charter is dated April 4, 2003. In addition, the Bylaws of the Board of Regents were updated and approved on February 6, 2001. (Copies of the BOR Charter and Bylaws are at Appendix A.)

Research is a critical tool in medical school education for it provides the foundation for scholarship among both faculty and students. It is the tool that distinguishes well-trained, capable faculty with an up-to-date understanding of emerging issues and techniques from those who are not. In addition, research provides a critical, objective criterion to acknowledge, support and reward faculty who maintain their expertise while pressing for significant new discoveries to better educate the next generation of young physicians/scientists.

From a University standpoint, research opportunities and putative collaborations constitute the prime attractant in recruiting and retaining outstanding faculty. They provide faculty and students the opportunity to engage in state-of-the-art science and also aid the University in maintaining its reputation and influence in emerging areas. The environment at USU also focuses the faculty on research questions specific to military health care.

Excellence in research helps to maintain and extend USU's position within the community of military-specific research investigators. Efforts in basic research on emerging issues in the protection of the warfighter also aid in preparing our medical students to integrate the

new challenges they will face in practice. Support of basic research in the protection and health promotion for military members, dependents, and veterans provides a university setting where researchers from several institutions can develop multi-disciplinary projects, which promote USU's status and influence among its peers. It also enhances the University's status in the general scientific community. Altogether, these challenges greatly improve the recruitment of students as well as faculty.

- **USU Board of Regents 2003 Annual Report to the Secretary of Defense, June 30, 2003, Pages 2-3.**

The Board's Seventh Annual Report to the Secretary of Defense. Since 1997, the USU Board of Regents has submitted an annual report to the Secretary of Defense. This report partially fulfills the Board's obligation to advise the Secretary on the University's operation and often focuses on contributions that USU makes to the Department of Defense. The 2003 Annual Report, surveyed the University's research enterprise and provided information covering the following areas: the unique perspective of USU in military medicine; the critical nature of research; research challenges in bioterrorism (*i.e., USU's leadership role in the unification of its Middle Atlantic partners (Health and Human Services Region III) in the successful submission of a Center Grant Application to the National Institutes of Health*); USU research programs (*i.e., hundreds of active protocols at USU with four broad categories of research: basic, clinical, public health, and nursing*); and, the USU research emphasis on interdisciplinary programs (*i.e., infectious diseases and tropical medicine; casualty care and operational medicine; behavioral and neurosciences; and, molecular and cell biology and genetics*).

(The University's research activities are discussed under RESEARCH ADMINISTRATION, which follows in this section of the Journal.)

STRATEGIC PLANNING

A Perpetual Work-In-Progress. The USU Strategic Plan has been continuously evolving to reflect the changing requirements of the Strategic Plan of the Military Health System (MHS), which, in turn, is also linked with the Strategic Plans of the University's primary customers, the Surgeons General of the Army, Navy, and Air Force.

All Proposals for Funding Must Tie Into the USU Strategic Plan. Beginning with the USU Strategic Planning Process, initiated during 1991, an increasingly systematic approach has been developed for setting the University's priorities and allocating resources based upon relevance to the USU Strategic Plan. *USU activity leaders must show a direct relationship with the current USU Strategic Plan when submitting their written requests for future budgets.* Thus, a formal process has evolved for identifying program needs and for the submission of budget requests. Involvement of USU administration, faculty, and staff at both the formal and informal levels of the decision-making process assists in the equitable and ***mission-focused allocation of resources*** throughout the University's wide range of activities. The USU Strategic Plan is also used to develop the University's annual Program Objective Memorandum (POM) submission. The POM request, covering a five to six year timeframe, is submitted to the Department of Defense, through the Office of the Navy Surgeon General, in order to gain the necessary funds for the USU budget as part of the Defense Health Program.

Strategic Planning Initiatives from 1998 through 2003. During 1998, the University updated the basic objectives under each of the goals of its Strategic Plan. Then, during 1999 through 2000, metrics or performance measurements were established and monitored for each objective. Next, to ensure that the USU Strategic Plan was accurately reflecting the evolving requirements of the MHS, on April 25-27, 2001, the senior staff of USU, representatives from the teaching hospitals, the Chair of the BOR, and senior staff from the offices of the Surgeons General met to participate in a three-day strategic planning session. The purpose of the retreat was to review and update the goals and objectives of the USU Strategic Plan so that they would appropriately reflect the current requirements of the MHS. Reference materials included the Strategic Plans of Health Affairs in the Office of the Secretary of Defense and the Surgeons General, the USU Strategic Plan, and survey results as they were recorded during the initial group discussions.

Through group interaction, the attendees of the 2001 retreat reviewed USU's internal and external customers and stakeholders. Then, the concerns of those stakeholders were identified, discussed, and weighted during an analysis of the strengths, weaknesses, opportunities, and challenges existing within USU's environment. Following those discussions, *seven strategic issues were identified: marketing; resources; people; USU as a strong advocate for the MHS direct care mission; education/research/partnerships; strategic thinking; and, communication.* Those seven strategic issues were carefully developed into seven strategic goals with forty-one objectives. Next, 22 of the most significant objectives were prioritized for initial implementation and action. At the conclusion of the 2001 strategic planning session, the focus of the University's mission statement was reviewed to identify a shorter, yet accurate reflection of the University's purpose and future focus; the attendees agreed on the following: ***Learning to Care for Those in Harm's Way.***

Goal Champions were appointed to oversee the development and implementation of the actions required to accomplish the objectives and ultimate realization of each of the seven goals. Finally, the attendees designated Team Leaders to develop action plans for accomplishing one, or more, of the prioritized objectives; and, teams were formed to work on the selected objectives. Throughout 2001 and 2002, the staff, faculty, and students of the University continued their efforts to meet the goals and objectives of the 2001-2002 USU Strategic Plan. Individual progress reports on each of the seven goals were provided to the USU President who forwarded them to the USU Board of Regents. Over 250 members of the USU Community developed and implemented strategies under the seven goals and forty-one objectives as the University continued to focus on its mission statement - *Learning to Care for Those in Harm's Way*.

In December of 2002, the senior staff of USU, representatives from the Offices of the Surgeons General and the military teaching hospitals, the Chair of the BOR, and the USU Faculty Senate participated in a retreat to revise and update the 2001-2002 Strategic Plan. The group identified current issues facing the Nation and the University's stakeholders and realigned USU's resources and strategic goals and objectives to better meet the evolving requirements of military medicine. Five new goals (***Education; Military Service; Research; Leadership***; and, ***Stewardship***) and 24 objectives were identified. To ensure that relevant objectives were retained from the 2001-2002 Strategic Plan, a working group was selected to integrate significant objectives into the new plan. **James G. Smirniotopoulos, M.D., Professor and Chair, USU SOM Department of Radiology and Radiological Sciences**, volunteered to lead the initiative to formalize the 2003-2004 Strategic Plan; the on-going process includes expanded faculty involvement in the development of the strategies. During May of 2003, the USU Board of Regents (BOR) voted to accept the newly designed USU Strategic Plan. As of May 2004, the following tasks have been accomplished: 1) establishment of a web site for the USU Strategic Plan <<http://www.usuhs.mil/strat/index.html>>; 2) reconciliation of the new USU Strategic Plan with the 2001-2002 Strategic Plan; 3) alignment of the new USU Strategic Plan with the Strategic Plan of Health Affairs in the Office of the Secretary of Defense; 4) finalization of priorities and the wording for the strategic goals; 5) presentation of the current plan to the University and Henry M. Jackson Foundation leadership; 6) selection of goal champions; and, 7) presentation to the USU Administrative Officers and the Faculty Senate. To date, the goal champions are responding to comments from the University community, refining their objectives, and developing strategies and metrics. (The current USU Strategic Plan is at Appendix B.)

Progress Toward Achieving the University's Five Strategic Goals during 2003. *As the strategic planning process evolved, during 2003, the USU community incorporated the five strategic goals and 24 objectives into its on-going efforts to meet its mission and respond to the requirements of the MHS. The following are examples of selected issues and accomplishments, which addressed the University's five strategic goals, during 2003.*

GOAL 1: EDUCATION: To meet the Nation's needs as the preferred source for uniformed health care education and training.

OBJECTIVE - *USU will provide outstanding education to its students, focused on military readiness and homeland defense.*

USU Has World-Wide Recognition as the One Place Where Physicians Are Trained to Respond to Weapons of Mass Destruction.

USUHS graduates are exceeding the original expectations of Congress when the University was established, thus ensuring physician continuity and leadership for the Military Health System. The USUHS-unique training centered in preventive medicine and combat-related health care is essential to providing superior force health protection and improving the quality of life for our service members, retirees, and families. USUHS also provides a significant national service through its continuing medical education courses for military physicians (and advanced practice nurses) in combat casualty care, tropical medicine, combat stress, disaster medicine, and the medical response to weapons of mass destruction (WMD).

The military unique curricula and programs of the Uniformed Services University, successfully grounded in a multi-Service environment, draw upon lessons learned during past and present-day combat and casualty care to produce career-oriented physicians, advanced practice nurses and scientists with military unique expertise.

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy, Testimony before the Senate Appropriations Committee, Subcommittee on Defense Health, April 30, 2003.**

For over 25 years, USU has been at the forefront of weapons of mass destruction (WMD)-related medical education. The University has successfully prepared its uniformed graduates to provide military-unique health care and expertise in austere conditions and to respond to injuries caused by chemical, biological, radiological, nuclear, and explosive (CBRNE) weapons. Where the average school of medicine (SOM) in the United States offers 13 hours of preventive medicine training, the USU SOM provides 130 contact hours; while the DoD scholarship physicians receive between 50 to 132 hours of

medical readiness training, the USU SOM students receive between 784 and 889 hours. A military-unique focus and operational training exercises are interwoven throughout the SOM curriculum; as a result, career-committed USU graduates with their military-unique education and extraordinary retention rates are providing quality care, continuity, and leadership throughout the Uniformed Services. ***The Association of American Medical Colleges Reporter has twice featured USU as the one place where physicians are trained for the medical response to WMD in its December issues of 1998 and 2001.*** In addition, during 2003, the Medical Staff at the White House, the Congress of the United States, the Chairman of the Joint Chiefs of Staff, the USU Executive Agent (the Navy Surgeon General), and the USU Board of Regents have continuously validated USU's long-standing expertise in WMD-related training and expertise. (See *MILITARY UNIQUE CURRICULUM* in Section II of the Journal for breakout by Academic Year.)

OBJECTIVE - USU will coordinate with other agencies to develop and conduct specialized training for health care professionals (to include: 1) disaster and humanitarian relief; 2) weapons of mass destruction; 3) traumatic and post-traumatic stress; 4) preventive medicine for mission readiness; and, 5) force health protection and healthy lifestyles).

USU Programs Are Collaborating Throughout DoD and Other Federal Agencies in WMD-Related Areas of Expertise.

Four USUHS activities, internationally recognized by the emergency responder and health care communities, stand by ready to provide cost-effective, quality-assured WMD-related training and consultation. The USUHS Casualty Care Research Center (CCRC), the Center for Disaster and Humanitarian Assistance Medicine (CDHAM), the Center for the Study of Traumatic Stress (CSTS), and the Armed Forces Radiobiology Research Institute (AFRRI) have established credibility in providing military unique expertise covering four areas of WMD-related concerns: 1) the preparation of emergency responder communities; 2) ensuring communication and assessment of military medical humanitarian assistance training; 3) addressing traumatic stress of both civilian and uniformed communities during WMD-related incidents; and, 4) the development of medical radiological countermeasures to include the provision of unique training for the response to radiological emergencies.

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy, Testimony before the Senate Appropriations Committee, Subcommittee on Defense Health, April 30, 2003.**

USU Casualty Care Research Center. The USU Casualty Care Research Center (CCRC) was established in 1989, under the USU SOM Department of Military and Emergency Medicine, as a center of excellence for injury control and casualty care research. The location of the CCRC within the

multi-Service environment of USU, with its emphasis on education and development, scientific studies, research, and on-going clinical and operational practice, is critical to the development and sustainment of the CCRC's ability to maintain its core competency - *the capability to provide military unique medical expertise and experience required by both uniformed and civilian emergency/health care responders to weapons of mass destruction (WMD)-related and other national security contingencies*. Only DoD has a self-renewing source of physicians and other medical personnel with interest and experience in these areas; USU, through its students in the School of Medicine and the Graduate Education Programs, and its career-focused faculty and staff, plays a vital role for the DoD in the renewal process of militarily-focused and experienced health care providers. The University ensures continuity and leadership for the Military Health System; and, the CCRC's core competency plays an essential role in that equation. ***Since its establishment, the CCRC has successfully served as a bridge between DoD and Civilian Emergency Responders for the coordination and sharing of critical, military-unique medical knowledge, technology, and expertise.*** The CCRC is focused on the crisis management response to: *weapons of mass destruction; counter terrorism; protective operations; hostage rescue; explosive ordnance disposal; maritime operations; civil disorder; and, major national security events.* ***To date, this CCRC Program has trained over 6,000 civilian emergency personnel from 750 agencies through collaborative support agreements with law enforcement organizations from all 50 States, the District of Columbia, Guam, Puerto Rico, the United States Virgin Islands, England, Denmark, and Canada.*** Forty local, State, and Federal law enforcement agencies mandate this CCRC certification-based training as a condition of employment for their SWAT medics. Skills are taught that reduce the risk of death or serious injury during counter terrorist operations, drug raids, hostage situations, and other high risk operations for DoD personnel and, on a reimbursable basis, for personnel from other Federal, State, and local agencies. In October of 2002, ***the Secretary of Defense recognized the exemplary response by CCRC to the terrorist attacks on September 11th, when he awarded the Exceptional Civilian Service Award and the Secretary of Defense Meritorious Civilian Service Award to several CCRC personnel.*** The CCRC was also recognized on February 28, 2003, when ***the Honorable Gail Norton, Secretary of the Interior, presented a Unit Citation Award to the CCRC in recognition of critical support provided to the United States Park Police on September 11, 2001.***

USU Center for Disaster and Humanitarian Assistance Medicine. Established during 1998, under the USU SOM Department of Military and Emergency Medicine, the USU Center for Disaster and Humanitarian Assistance Medicine (CDHAM) uses training, technology, and best management practices to improve military medical capabilities and readiness during disaster and humanitarian contingencies, especially through collaboration within the DoD, the international medical community, and the host nation medical infrastructure and beneficiary populations. The CDHAM works closely with the Unified Combatant Commands to meet its primary mission. Such efforts generally involve direct liaison with other DoD humanitarian assistance centers to include: the Center of Excellence (COE) for Disaster Management and Humanitarian Assistance under the United States Pacific Command (USPACOM) located in Honolulu, Hawaii; and, the Center for Disaster Management and Humanitarian Assistance (CDMHA) under the United States Southern Command (USSOUTHCOM), located in Miami, Florida. In conducting studies and operations concerning local and global relief efforts, the CDHAM also works to expand relationships with other Federal agencies such as the Office of Foreign Disaster Assistance (OFDA) and the United States Agency for International Development (USAID), as well as international organizations such as the Pan American Health Organization (PAHO) and the World Health Organization (WHO). During 2003, CDHAM was actively engaged in various studies supported by the Department

of Defense, the Unified Combatant Commanders, and other Federal agencies. ***For example, in 2002, the CDHAM produced a series of nine reports examining the training value of medical humanitarian assistance projects and their effectiveness for beneficiaries. To ensure the greatest exposure to military planners and decision-makers, during 2003, the nine reports from the study were published in booklet form and distributed widely among the DoD, the Unified Combatant Commands, and various offices concerned with humanitarian assistance and disaster response planning and execution.*** For greater visibility, two additional formats were also provided: a CD-ROM was developed containing a description of the CDHAM's mission and activities that has hot-links to all nine reports, available in *Adobe Acrobat*. The CD-ROM was distributed to the same distribution list utilized for the booklets described above; links to the *Adobe Acrobat* report files are also available through the CDHAM home page at <www.cdham.org>. In December of 2003, a peer-reviewed version of the summary report entitled, *Overview of Overseas Humanitarian, Disaster and Civic Aid Programs*, was also published in *Military Medicine*, 168, 12:975-980, 2003.

USU Center for the Study of Traumatic Stress. The last quarter of 2001 validated the *raison d'être* of the USU Center for the Study of Traumatic Stress (CSTS), when military unique expertise in disaster mental health and trauma research in terrorism and bioterrorism were recognized as being essential to national security. Federal and State leaders, as well as the public health and mental health care systems, teaching institutions, and media outlets were seeking to understand the traumatic impact of 9/11, the anthrax attacks, and the traumatic anxiety generated by those events. CSTS quickly assumed a leadership position in responding to those contingencies and in advising Federal and State leaders on recovery and resiliency; CSTS sustained its critical support throughout 2002 and 2003 in the form of education, training conferences, research, and published work addressing population-based trauma. Today, CSTS is well positioned within the Military Health System and continues to increase the military's medical knowledge (in the areas of epidemiology, psychology, neurobiology, health care systems and treatment) of the consequences of bioterrorism, trauma, and disaster and to apply that knowledge in addressing the real world problems, issues, and requirements of homeland defense, the response to terrorism and disaster, and humanitarian assistance. Currently, the Center's basic computer data base (accessible at <<http://www.usuhs.mil/psy/disasterresources.html>> or <<http://www.usuhs.mil/psy/traumaticstress/newcenter.html>>) provides over 17,000 articles of relevance to traumatic stress. It is this data base that enabled the CSTS to effectively respond, throughout 2002 and 2003, to the traumatic stress resulting from the terrorist acts of war against our Nation. ***By the end of 2003, CSTS leadership had been instrumental in developing and advancing a national strategy that integrates mental health into a public health paradigm for terrorism management and response;*** this occurred through the collaborative efforts and military unique expertise of the CSTS Director, who served as a participating member on the Institute of Medicine Committee on Responding to the Psychological Consequences of Terrorism. This new model is of substantial consequence as it demonstrates how ***disaster psychiatry***, a singular specialty significantly contributed through the forging of military medicine and USU faculty health care leaders in the 1980's, ***has become a recognized, valued and integral component for strengthening homeland security in the 21st Century.***

The Armed Forces Radiobiology Research Institute.

I want to thank you personally for the help we at CIA have received from AFRRI. CIA has been committed to ensuring the safety of our mail and AFRRI has been absolutely essential in our efforts. (AFRRI researchers have established a standard dosage of radiation necessary to eradicate anthrax spores; the researchers use a harmless surrogate spore that mimics the biological properties of live anthrax spores. This non-toxic spore can easily be placed in an envelope, and then tested, after irradiation procedures, at a specific mailing distribution area; the spore allows extensive testing for quality assurance to ensure the safety of those individuals who will handle the mail.) **The assessment of the effectiveness of our mail treatment processes would be impossible without your help.**

- **Dr. Brian Hollibush, Environmental Health and Preventive Medicine Officer, Central Intelligence Agency, Letter to the Director of AFRRI, May 8, 2002.**

Established as a TriService organization in 1961, and transferred to USU for management oversight in 1992, ***only the Armed Forces Radiobiology Research Institute (AFRRI) offers a program dedicated to comprehensive, militarily relevant radiobiological research to address the spectrum of radiological injuries anticipated under combat situations involving the use of nuclear or radiological weapons; no other program within the DoD addresses medical radiological defense research requirements.*** In meeting its mission, AFRRI must: 1) conduct applied radiobiological research to develop militarily relevant medical countermeasures against radiation injuries; 2) maintain a Medical Radiobiology Advisory Team to support accidental or premeditated events involving nuclear weapons, nuclear reactors, radiological dispersal devices, or other nuclear/radiological situations; 3) advise the Joint Chiefs of Staff (J-4 Medical); the Deputy Assistant to the Secretary of Defense, Nuclear Matters; the Joint Forces Command; and, the Surgeons reporting to the Combatant Commanders on medical nuclear defense; and, 4) train DoD medical personnel on the management and treatment of radiation casualties (accomplished through the internationally recognized *Medical Effects of Ionizing Radiation (MEIR) Course*). The AFRRI complex was designed and built to conduct radiobiology research and to develop medical radiological countermeasures in support of the military medical mission; ***only the AFRRI TRIGA nuclear reactor is designed for, and is wholly dedicated to, applied medical radiobiology research for medical readiness.*** Today, the military has a clear need for information on the sources and complicating effects of radiation. AFRRI routinely disseminates its research findings with the scientific community, within DoD, the private sector, and internationally. Its investigators' publications in peer-reviewed journals, presentations at professional conferences, and reports and recommendations to the TriServices and the Surgeons of the Combatant Commands provide timely information on the mitigation of radiation hazards and optimization of medical treatment strategies for radiation casualties. ***Selected examples of organizations, for which AFRRI has provided recent support include:*** the National Pharmaceutical Stockpile Program; the Interagency Working Group on Test Methods and Surrogates for *Bacillus anthracis*; the European Union on Medical Preparedness for Nuclear/Radiological Events; the Centers for Disease Control and Prevention; the Combatant Commander, United States Southern Command; the Department of State; the President's Science Advisor and the Office of Science and Technology Policy; National Guard Civil Support Teams; the Offices of the President and Vice President

of the United States; the United States Forces Command; the Secretary of Defense; the German Ministry of Defense; and, the Tokaimura Prefecture Emergency Operations Center, in Japan.

(See Section II, MILITARY UNIQUE CURRICULUM and RESEARCH CENTERS AND PROGRAMS, for further information on CDHAM, CCRC, and, CSTS; AFRRRI is described in Section VII of the Journal).

USU, the Academic Center for Military Medicine, Provides Specialized Training for the Military Health System.

USU's Public Health Program, with its emphasis on community health, ranks sixth in the Nation according to U.S. News & World Report's 2004 Rankings of America's Best Graduate Schools... USU's program ranked just below Tufts University, the Medical College of Wisconsin, Northwestern University, Oregon State University and the University of Rochester on the list of the top 10 community health master or doctorate programs.

- USU Medicine, U.S. News & World Report Ranks USU Graduate Programs in Top Six, Fall 2003, page 5.

During 2003, the University continued to serve as the Academic Center for Military Medicine for the 2,864 uniformed, off-campus USU faculty, who are located throughout the Military Health System (MHS). Through its continuing medical education programs and academic centers, the University presented military-relevant conferences and continued its collaborative efforts for the MHS. ***The following is a selected example of the superb response of the USU Educational Programs to the special needs of the Uniformed Services.***

The USU SOM Graduate Education Programs in Preventive Medicine and Public Health Rank 6th in the Nation. Throughout 2003, the USU School of Medicine (SOM) Preventive Medicine and Biometrics (PMB) Graduate Programs continued on-going collaborative educational agreements with the Walter Reed Army Medical Center Preventive Medicine Residency Program and Internal Medicine Fellowship Program, the Army Program for Training in Health Services Administration, the United States Army and the United States Public Health Service Laboratory Animal Medicine Program, the Navy Dental Research Institute Program in Dental Public Health, and the Indian Health Service Environmental Health Training Program. In addition, the PMB Department is affiliated with the United States Army and Navy Biomedical Research Laboratories located in: Bangkok, Thailand; Rio de Janeiro, Brazil; Nairobi, Kenya; Cairo, Egypt; Jakarta, Indonesia; and, Lima, Peru. A research program also exists under an agreement with the Ministry of Health, in Belize. *During 2003, the USU PMB Graduate Education Programs and Courses provided outstanding responsiveness to specific requests of the Uniformed Services; selected examples follow.*

The Occupational Ergonomics Program. Recognizing the importance of occupational musculoskeletal injuries among military personnel and, in response to the Army's request for specialty training in occupational ergonomics within the USU Master of Public Health (MPH) Program, a new area of concentration was established, the Occupational Ergonomics Concentration in the PMB MPH Program. The first student entered this program in July of 2002 and graduated in June of 2003. ***The Occupational Ergonomics Program is the only established graduate-level injury prevention program in the Department of Defense.***

The International Health Specialist (IHS) Program. Numerous After-Action Reports (AARs) indicated that Humanitarian Assistance (HA) and Disaster Response (DR) missions would benefit if members of the Air Force Medical System (AFMS) received additional training. The goal of the IHS Program is to prepare regionally-focused military medical experts who can help prepare uniformed forces for operational contingencies and the global response to medical crises, during combat or peacetime deployments. ***Each graduate understands the components, operations, and financing of health delivery services and has the administrative skills to plan, analyze, manage, and improve public health programs for the Uniformed Services. The graduate also understands the role that the United States military and other organizations and agencies play in addressing global health issues.*** Four students matriculated into the program during 2002; and, all four graduated in June of 2003; currently, there are four additional IHS students who are projected to graduate, in June of 2005.

The Master of Science in Public Health (MSPH) Program. USU has graduated five degree candidates between 2000 and April of 2004; during 2003, one officer graduated from the Health Physics specialty of the MSPH. Thirteen Navy, Air Force, Army, and Public Health Service officers are currently enrolled in the Environmental and Occupational Health and the Health Physics specialties in the MSPH Program; four of these students are expected to graduate, during 2004. Students in both the Ph.D. and the MSPH Programs design and conduct research with military relevance. ***Past and current projects have included the development of chemical warfare detection methods and instrumentation.*** The students and program faculty work closely with the Uniformed Services and other Federal and international organizations to ***identify and address current needs of operational forces and emergency responders.***

The TriService Advanced Military Tropical Medicine Course. The PMB *TriService Advanced Military Tropical Medicine Course* has been offered at USU, beginning in 1996, through the Summer of 2003. During 2003, 71 military medical officer students were ***trained in operational military medicine, consisting of four weeks of lectures and laboratories in the advanced diagnosis and treatment of tropical diseases. Approximately 70 lecturers provided over 106.5 hours of didactic instruction. To date, over 425 students have completed the course.*** One hundred and thirteen continuing medical education hours (CME) were awarded during the past year; and, the overseas field missions were attended by 38 medical officers (El Salvador - 17; Bolivia - 8; Peru - 8; Cairo - 3; and, Thailand - 2).

The Tropical Medicine and Travelers' Health Course. The PMB *Tropical Medicine and Travelers' Health Course* is offered as a 12-week course during the Spring Quarter of the MPH Program. ***It includes lecture, seminar, laboratory and case-based curriculum approved by the American Society***

of Tropical Medicine and Hygiene and leads to eligibility for the qualifying examination in Tropical Medicine and Travelers' Health. To date, 31 uniformed medical officers and 11 civilian physicians have completed the course.

The Diagnostic Parasitology Course. The *Diagnostic Parasitology Course* is offered as a series of lectures and hands-on laboratory sessions for individuals wishing to ***study parasitic infections in humans***. Uniformed and civilian medical technologists and physicians from all parts of the world have completed this course. Participants for the course have included: United States Embassy personnel from Asian and African countries sent by the United States Department of State; members of the Peace Corps; a medical doctor from the Japan Ground Self Defense Force; and, civilians from various foreign and domestic health-related organizations. Since 1988, over 290 individuals have taken the course, to include 10 individuals who took the course, during 2003.

Critical Decision Making for Medical Executives: Keys to Improving Population Health. The *Critical Decision Making for Medical Executives: Keys to Improving Population Health Course* is a five-day training course held four times each year; it responds to the Congressional mandate that current and prospective DoD health care leaders receive training in health care management and administration. ***The focus of the course is to equip health care professionals with the knowledge and tools needed to integrate clinical and business decisions to improve health care delivery and population health. To date, 34 sessions have been held in the TRICARE Regions and approximately 950 senior officers have been trained for the MHS.*** (See Sections II, RESEARCH CENTERS AND PROGRAMS, and IV, GRADUATE EDUCATION PROGRAMS, for further information on the PMB and other Graduate Education Programs at USU.)

OBJECTIVE - USU will develop and deploy continuing health education and distance learning programs to cost-effectively enhance the competency of military health care professionals in military unique curriculum.

USU Provides Nationally Recognized Continuing Education Credit. The USU Office of Continuing Education for Health Professionals (CHE) provides nationally recognized continuing education credit for physicians, nurses, psychologists, health care executives, and social workers through its accreditation by: 1) the Accreditation Council for Continuing Medical Education; 2) the American Nurses Credentialing Center's Commission on Accreditation as a Provider of Continuing Education in Nursing; 3) the American Psychological Association; 4) the American College of Healthcare Executives; and, 5) the State of Maryland Department of Health and Mental Hygiene Board of Social Work Examiners. *This inclusive provision of continuing education for multiple disciplines, from one office, is believed to be unique within the Military Health System (MHS).* During Fiscal Year 2003, to the present, there has been a marked increase in CHE's Internet activities that are focused on enhancing the competency of military health care professionals in military unique curriculum; ***the following selected examples are provided, at no cost, by the USU Office of CHE.***

DoD Smallpox Vaccination: Standard Training. The threat of smallpox provided the momentum for a partnership between the DoD Military Vaccine Agency (MILVAX) and USU. *DoD Smallpox Vaccination: Standard Training* consists of sessions grouped specifically for three levels of professional smallpox vaccination program responsibility. USU provides continuing education for physicians, nurses, and members of the American College of Healthcare Executives (ACHE). About 3,000 participants have successfully completed these sessions. Of these, 359 physicians, 250 nurses, and 21 ACHE members earned up to 53.5 continuing medical education (CME), 63.7 continuing nursing education (CNE), and 10.5 category II (non-ACHE) credits. This program is available at <<http://dod.digiscript.com>>.

Military Vaccine Agency (MILVAX) Spokesperson Training Course. The *Military Vaccine Agency (MILVAX) Spokesperson Training Course* started during Fiscal Year 2004. It is a condensed version of a three-day conference, which provides a variety of information related tasks regarding the Anthrax Vaccine Immunization Program (AVIP) and the Smallpox Vaccination Program (SVP), through either an administrative or clinical focus. USU provides continuing education for physicians, nurses and members of ACHE. This activity is available at <<http://dod.digiscript.com>>.

On-Line Forum for Current Advancements in Deployment Medicine. The Journal of Special Operations Medicine is a quarterly, peer-reviewed journal geared to Special Operations Forces medical professionals. Its mission is to promote the professional development of Special Operations medical personnel by providing a forum for the latest relevant advancements in deployment medicine. USU provides continuing education to health providers who read the article(s) and successfully complete the post-test(s). The Journal of Special Operations Medicine is available at <<http://www.hurlburt.af.mil/jsou>>.

(Section VI of the Journal provides detailed information on the USU Office of Continuing Education for Health Professionals.)

OBJECTIVE - USU will ensure that all programs meet or exceed national standards for accreditation.

USU Programs Receive Maximum Terms of Accreditation.

I want to extend my congratulations to you, the leadership and the faculty at the Uniformed Service University for your exemplary performance in receiving a ten-year accreditation with commendation from the Middle States Commission on Higher Education. This is a notable achievement, and it reflects a successful, long-term commitment to the highest levels of professional medical education for this Nation's Military Health System. The quality of your graduates continues to serve as a testament to the quality of the teaching that was endorsed by the Middle States Commission. You and your staff continue to make significant contributions to our Nation's military readiness and our national medical preparedness.

- **The Honorable William Winkenwerder, Jr., M.D.,
Assistant Secretary of Defense, Health Affairs, Letter
to the USU President, July 22, 2003.**

Maximum Term of Accreditation with Commendation Is Granted to USU. As described in the above quotation, the University received the maximum accreditation, with commendation, from the Middle States Commission on Higher Education, during 2003, for a period of ten years. In addition to accreditation from the Middle States Commission, the USU Office of Continuing Education for Health Professionals (CHE) ensures the University's ability to provide nationally recognized continuing education credit for physicians, nurses, psychologists, health care executives, and social workers through continued accreditation by: 1) the Accreditation Council for Continuing Medical Education; 2) the American Nurses Credentialing Center's Commission on Accreditation as a Provider of Continuing Education in Nursing; 3) the American Psychological Association; 4) the American College of Healthcare Executives; and, 5) the State of Maryland Department of Health and Mental Hygiene Board of Social Work Examiners. Also, the University maintains full accreditation from the American Association for the Accreditation of Laboratory Animal Care (AAALAC) and the Nuclear Regulatory Commission (NRC). (*See ACCREDITATION, which follows in this section of the Journal for further information.*)

Maximum Term of Accreditation Continues for the School of Medicine. The accreditation process of the Liaison Committee on Medical Education (LCME) is designed to certify that a medical program meets prescribed standards; and, by awarding accreditation, the LCME indicates confidence in the quality of the medical school program. The USU School of Medicine (SOM) received provisional accreditation from the LCME in 1976; the SOM was fully accredited in 1979, and has continuously maintained that status. Following its last accreditation process, the LCME provided official notice, on April 13, 2000, that the SOM, to include the USU SOM Graduate Education Programs, had received continued maximum accreditation for the educational program leading to the Medical Doctor Degree for a seven-year term. The next full survey will take place during the 2006-2007 Academic Year. In

its response to the 2002 SOM Progress Report, the LCME official response, dated April 6, 2002, stated the following: **The LCME has reviewed and accepted with appreciation your progress report on the documentation of the comparability of clinical educational experiences across clerkship sites... The (USU SOM) system in place for documentation of the comparability of clinical educational experiences is an outstanding model for other institutions to emulate.**

In addition to its inclusion in the accreditation granted to the University by the Middle States Commission on Higher Education and the SOM's accreditation by the LCME, ***the following professional organizations continue to authorize accreditation for the various programs and activities of the SOM:*** 1) the Accreditation Council for Continuing Medical Education; 2) the Council on Education for Public Health (CEPH); 3) the American Psychological Association (APA) Committee on Accreditation; and, 4) the Accreditation Board for Engineering and Technology (ABET). Also, SOM Steering Committees are actively involved with the accreditation process for two additional areas of responsibility reviewed by: 5) the American Association for the Accreditation of Laboratory Animal Care; and, 6) the Nuclear Regulatory Commission (*see Section II, ACCREDITATION, for further information relevant to the School of Medicine; and, see ACCREDITATION in Section IV for further information on the USU SOM Graduate Education Programs*).

Maximum Terms of Accreditation with Commendation Are Granted to the Graduate School of Nursing.

The members of the Council on Accreditation of Nurse Anesthesia Educational Programs (COA) are pleased to inform the Uniformed Services University of the Health Sciences Graduate School of Nursing Nurse Anesthesia Program... that continued accreditation has been granted... Given this action of the COA, the program will be scheduled for its next consideration of continued accreditation in the Fall of 2013... Finally, the COA would like you to know that very few programs are not required to submit progress reports following an accreditation review and even fewer programs have achieved the maximum accreditation of ten years.

- **The Council on Accreditation of Nurse Anesthesia Educational Programs (COA), Letter to the USU GSN, October 31, 2003.**

During 2002 and 2003, the USU Graduate School of Nursing (GSN) received maximum accreditation from its three accrediting entities: 1) on March 18, 2002, the University was formally notified of the action taken by the National League for Nursing Accrediting Commission (NLNAC) at its meeting held on February 27, 2002: **The Commission approved the Master Degree Program for continuing accreditation and scheduled the next evaluation visit for the Fall of 2009.** The rationale for granting accreditation for the maximum of eight years was provided in the NLNAC final report: **The Uniformed Services University of the Health Sciences GSN has met and exceeds all criteria for continuing education. This program provides an outstanding model for preparing advanced practice nurses for military service and care of patients in crises and disaster situations.**

This program is on the cutting edge of cost effectively incorporating advanced technology into the curriculum and instruction process to produce a highly competent practitioner. This program can serve as a model to advance nursing education, practice and scholarship as nursing moves into care of the global community; 2) on May 16, 2002, the USU GSN received official notification from the Commission on Collegiate Nursing Education (CCNE) that: **The CCNE Board of Commissioners acted at its meeting on April 20, 2002, to grant accreditation of the Master Degree Program in Nursing at the Uniformed Services University of the Health Sciences for a term of 10 years, extending to June 30, 2012. At its meeting the CCNE Board determined that the program met all four accreditation standards. The Board additionally determined that there are no compliance concerns with respect to the key elements;** and, 3) on October 31, 2003, USU received notification that the Nurse Anesthesia Program had been awarded a ten-year accreditation as the very first program in the Nation re-accredited under the new standards and the first to be granted the maximum ten-year re-accreditation. In the above-cited quotation, the COA commended the University for its excellent program and noted zero critical weaknesses (*see ACCREDITATION, in Section III, for further information*).

GOAL 2: MILITARY SERVICE: To provide graduates, faculty, and staff who serve as experts in the medical response to Disasters, War, and Humanitarian Crises.

OBJECTIVE - Produce skilled professionals with special orientation in those aspects of medicine, science, and nursing to support the Military and Federal Health Care Systems.

USU Graduates Provide Military-Unique Expertise and Present Clinical Skills Required for MHS Residency Programs and Certification Examinations.

School of Medicine Alumni.

As the Executive Agent of the Uniformed Services University of the Health Sciences (USUHS), I would like to comment on the extraordinary achievements of the University... USUHS SOM graduates, with retention averaging twenty years of active duty service, now represent over 22 percent of the total physician officers on active duty in the Armed Forces. USUHS graduates are exceeding the original expectations of Congress when the University was established, thus ensuring continuity and leadership for the Military Health System... The USUHS-unique training centered in preventive medicine and combat-related health care is essential to providing superior force health protection.

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy, Testimony before the House Armed Services Committee, Subcommittee on Total Force, March 27, 2003.**

Evidence of the High Quality of USU SOM Training Comes from Many Sources. Each academic year, the Association of American Medical Colleges (AAMC), with the assistance of medical school administrators, conducts a survey of graduating seniors at medical schools throughout the United States. Students are asked to rate statements that cover their entire medical school experience. Included among the numerous topics surveyed are premedical preparation, pre-clinical education, clinical experiences, student services and the overall quality of the medical education received. The USU Office of Student Affairs reported that the ratings of the Year 2003 Medical School Graduation Questionnaire show a consistently strong, positive evaluation by USU students at a level well above the all-schools comparison. *For example, 67.6 percent of the USU SOM seniors **strongly agreed** with the statement, Overall, I am satisfied with my medical education. Whereas, when averaging the replies from all responding medical schools in the United States, only 35.0 percent rated the statement as strongly agree.*

Traditionally, more than 75 percent of USU SOM graduates receive their first choice of specialty and location for their first year of residency training. The results of the 2003 Joint Service Graduate Medical Education (GME) Selection Board for the USU SOM Class of 2004 were favorable. The overall

selection rate for FIRST CHOICE programs was 77 percent; 128 out of 167 USU SOM students matched for their first choice both in specialty and training site. Seventeen additional students received their first choice in specialty for ***a resulting total of 87 percent who received first choice in specialty. Feedback obtained from residency program directors indicates that the SOM graduates are consistently recognized as well-prepared to complete graduate medical training.***

USU SOM students have consistently passed the United States Medical Licensing Examination (USMLE) Steps 1 and 2 at rates equal to, or higher than, the national average. In 1999, the National Board of Medical Examiners (NBME) began computer-based testing (CBT) for the USMLE Step 1 and 2 Examinations. The Step Examinations are administered at Prometric Testing Centers throughout the calendar year. The USUHS first-time pass average for the Step 1 Board Examination, during 2003, was 90.1 percent, which is consistent with national testing results. ***Most of the USU fourth-year students (SOM Class of 2004) completed the Step 2 CBT between July and September of 2003. The overall performance for the Class of 2004 was strong; the average score for the class was 211; and, the pass rate was 95 percent.***

An example of the critical role of USU SOM graduates in the MHS was reported to the Congress in both 2002 and 2003, when the Surgeon General of the Navy testified that the Center for Navy Analysis (CNA) had provided significant data on the retention of physicians. The Navy Surgeon General informed the Congressional Committees that his most undermanned specialties were general surgery and all surgical subspecialties, orthopedic surgery, diagnostic radiology, anesthesiology, and urology. ***Many of these specialties are critical wartime specialties and shortfalls could have a negative impact on medical readiness. Overall, the median length of non-obligated service for physician specialists averages only 4.4 years. That average drops to 2.9 years when USU graduates are excluded; the median length of non-obligated service as a specialist for USU graduates is 9 years.*** Thus, the USU SOM alumni are providing essential support for medical readiness.

Following an inclusive review in 1995, the General Accounting Office (GAO) confirmed that ***43 out of 44 commanders of major military medical units perceived that physicians from the University have a greater overall understanding of the military, greater commitment to the military, better preparation for operational assignments, and better preparation for leadership roles.*** The GAO reviewers also pointed out that ***they perceive that University graduates have a better appreciation of and greater satisfaction with the physician's role within the military*** than other accession sources (General Accounting Office Report, *Military Physicians - DoD's Medical School and Scholarship Program*, September 29, 1995, page 43). ***Congressional testimony by the Surgeons General and the Office of the Assistant Secretary of Defense for Health Affairs strongly reflects that these significant findings have been validated over the past ten years.*** Of significant note, included in the last part of Section II, SOM ALUMNI, under *Selected Profiles*, is a description of the conceptualization and development of Trauma Training Centers for the Armed Forces, which includes the major role of the USU SOM alumni in the initial development, subsequent implementation, and ultimate provision of leadership for the current Trauma Training Centers of the Army, Navy and Air Force. (See *ALUMNI* in Section II of the *Journal* for further information.)

Graduate School of Nursing Alumni.

The Federal Nursing Chiefs met with the program evaluators and gave testimony to their support of the GSN. Comments during the meeting with the Federal Chiefs included: 1) we are excited to see the quality of the students who graduate from this program... they are exceptional leaders; 2) we are directly involved in helping the School understand the type of skills graduates need and find them very responsive to our suggestions.

- **Site Surveyors from the National League for Nursing Accrediting Commission, Final Report, November 1, 2001.**

GSN Alumni Have Established Extraordinary Results on National Certification Examinations and Performance Evaluations. The immediate measurable standard of success for the GSN alumni is the passing of the National Certification Examinations. ***Over 97 percent of the GSN graduates have passed the National Certification Examinations at the upper percentile, on their initial examinations.*** For example, credentialing scoring information released on February 26, 2002, by the American Nurse Credentialing Center's Commission on Certification shows that of the 15 GSN Family Nurse Practitioner graduates who took the certification examinations, all 15 passed with a mean score of 123.3, the highest ever achieved. And, during 2003, all 10 GSN Nurse Anesthesia graduates passed the Council on Certification of Nurse Anesthetists Certification Examination on the first attempt; seven of the ten passed with perfect scores of 600.

Another short-term measure is the GSN graduate's performance as an advanced practice nurse, as determined by the graduate's immediate supervisor. One year after graduation, both the GSN alumni and their supervisors are concurrently surveyed. Immediate supervisors, familiar with the day-to-day performance of the GSN graduates, are queried regarding specific areas of the alumni's strengths and weaknesses in clinical specialty performance. This information is collated and compared to the graduates' self-performance ratings. In addition, the GSN asks its graduates to complete an end-of-program evaluation, followed by one-year and three-year (Family Nurse Practitioner only) post-graduation evaluations. Information from the surveys is tracked and trended to identify any needed revisions or additions to course or clinical content or experiences. Reviews of the end-of-program, alumni, and employer evaluation data by the GSN and the Federal Nursing Chiefs ensure that the GSN curriculum is meeting the requirements of the Uniformed Services. This process continued during 2003, with a strong overall response that reflects satisfaction with the GSN Alumni.

During 2003, two GSN Nurse Anesthesia alumni were appointed to the TriService Joint Readiness Clinical Advisory Board. **Captain Wendy Aronson, CRNA, USAF, MC, GSN Nurse Anesthesia Class of 1999**, was deployed during the past year. Setting up operations at an austere location, Captain Aronson pioneered the modification of Expeditionary Medical Support (EMEDS) supplies resulting in significant savings of compressed oxygen, a rare commodity in an austere environment. Her efforts led to Air Force-wide recognition and her appointment to the prestigious TriService Joint Readiness Clinical Advisory Board (JRCAB) at Fort Detrick, Maryland. **Major Brian Todd, CRNA, USAF, NC, GSN Nurse Anesthesia Class of 1999**, was deployed to Oman during the past year. An expert in field

equipment, he was one of the first USAF CRNAs to use specialized anesthesia equipment in an austere environment. Due to his expertise, he was also named to the JRCAB, which establishes equipment policy for the Services. (See *ALUMNI* in Section III of the Journal for further information.)

Alumni of the USU SOM Graduate Education Programs.

The graduate programs at USU are important to the University for many reasons. They help to train a cadre of well qualified, experienced biomedical scientists and public health practitioners who will continue the tradition of scientific service to the Nation in the civilian and military worlds. Strong graduate programs are important because of the major effect active graduate programs have on the intellectual vitality of departments and programs. The presence of well-populated and thriving graduate programs is also an important factor in the recruitment of the best applicants for faculty positions at the University. USU graduate programs already serve these multiple needs.

- *VIII, Graduate Education in the Biomedical Sciences and Public Health, Subcommittee Report, Middle States Association of Colleges and Schools (MSA) Self-Study, submitted to the Evaluation Team representing the Middle States Commission on Higher Education prior to the site visit on March 30 - April 2, 2003.*

USU SOM Graduate Education Program Alumni Provide Essential Support to the Military Health System. The early founders of USU understood, that in order to gain and sustain accreditation, Graduate Education Programs had to be structured within the School of Medicine (SOM). The USU SOM admitted its first graduate students in 1977; ***since its establishment, through April of 2004***, a total of 798 advanced degrees have been granted by the University: 242 Doctors of Philosophy; 15 Doctors of Public Health; 76 Masters of Science; 430 Masters of Public Health (***more than 90 percent of the graduates of the MPH Program return to their individual Services and continue to hold public health positions throughout DoD***); 5 Masters of Science in Public Health; 26 Masters of Tropical Medicine and Hygiene; and, 4 Masters of Military Medical History. Of the 166 graduate education students enrolled during 2003, 115 were Ph.D. or DrPH students, and 51 were Master Degree candidates. Graduate Education Programs in the basic medical sciences benefit the USU and the Military Medical System by providing training opportunities for qualified active duty personnel of the Uniformed Services who receive authorization to participate in the USU graduate training programs under the sponsorship of their parent Services (***as reported in the 2003 USU Cost Avoidance Fact Sheet, 41 uniformed officers received advanced degrees during the May 2003 graduation ceremonies***). It is particularly gratifying for the USU faculty to note that a sizeable number of USU Graduate Program alumni hold career level appointments in DoD research, clinical, and educational agencies. Furthermore, a sizeable group of other graduates occupy responsible positions in other Federal government agencies concerned with the general maintenance of the Nation's health. (See Goal 4 of this Section and Section IV for further information on the *ALUMNI of the USU SOM Graduate Education Programs*.)

GOAL 3: RESEARCH: To be a leader in basic, clinical, and health services research to improve health care, to protect, sustain and enhance the fighting force and secure public health.

OBJECTIVE - USU will emphasize research and development relevant to military, Federal, and homeland security needs.

Essential Science Indicators, an ISI evaluation tool, ranks the top journals and nations, and the top 1 percent of scientists, institutions and companies by field of research. To be even listed in any one category, an institution has to be in the top 1 percent by number of citations in the period covered by Essential Science Indicators (ESI). For the period covering the last ten years, USU ranked in the top 1 percent in seven fields: Clinical Medicine; Immunology; Biology & Biochemistry; Microbiology; Neuroscience & Behavior; Psychiatry/Psychology; and, General Social Sciences. This ranking is based on the number of citations received by papers published by USU Faculty in the period.

- Ms. Ursula Scott, Assistant Vice President, USU Learning Resource Center, *Essential Science Indicators and USU*, USU Communications Network, February 17, 2004.

USU Research Proves Relevant to the Military Health System. Examples of scientific accomplishments, during 2003, include the following selected examples. ***USU is part of a Middle Atlantic Region University Consortium that was recently selected by Health and Human Services (HHS) as one of eight Regional Centers of Excellence (RCE) for Biodefense and Emerging Infectious Diseases, with Alison D. O'Brien, Ph.D., Professor and Chair, USU SOM Department of Microbiology and Immunology, serving as one of five members on the Middle Atlantic RCE Executive Committee.***

A USU research project was recognized by Science as one of the top ten scientific breakthroughs of 2002. Two researchers from the USU SOM Department of Anatomy, Physiology and Genetics (APG), continued their nationally recognized work in which a new photosensory system in the mammalian eye has been identified that is responsible for resetting the internal 24-hour (circadian) clock. In collaboration with colleagues from the Scripps Research Institute, the Genomics Institute of the Novartis Research Foundation, and Washington University, ***this research is leading to an understanding of how to prevent the effects of jet lag, which degrade the performance of deployed service members***; in an age when the men and women of our Armed Forces are immediately deployed into theaters of operation many time zones away, developing such strategies could prove critical to optimized performance and medical readiness.

USU researchers are targeting malaria at home and abroad. Researchers from the USU SOM Department of Preventive Medicine and Biometrics are helping nations to predict high-risk locations for malaria occurrence through satellite imaging and the use of geographic information system (GIS) technology. ***This technology is used to predict malaria mosquito population levels and disease***

transmission risks within precise areas and time frames. Once a functional GIS is developed for a whole country, it can be used in other public health programs such as immunization and dengue control; this USU area of research continued to garner national press coverage, during 2003.

Two USU Department Chairs have had their NIH grants renewed for 22 and 21 Consecutive Years. **Brian M. Cox, Ph.D., Professor and Chair, USU SOM Department of Pharmacology,** and **Alison D. O'Brien, Professor and Chair, USU SOM Department of Microbiology and Immunology,** had their NIH grants renewed for 22 and 21 consecutive years; their studies are focused on *the mechanisms of morphine tolerance and dependency* (Doctor Cox) and the development of novel plant-based edible vaccines for the prevention of colonization in livestock and *the protection of humans against infection and disease associated with Shiga toxin-producing E. coli* (Doctor O'Brien). (See RESEARCH ADMINISTRATION from Section I and SELECTED PROFILES OF USU SOM FACULTY and RESEARCH CENTERS AND PROGRAMS in Section II of the Journal for further information on SOM Research.)

OBJECTIVE - USU will emphasize research objectives established by Service and Joint Service medical requirement documents.

The Armed Forces Radiobiology Research Institute (AFRRI) Research Programs Are Globally Recognized. Recent requests for presentations, briefings, collaborative agreements, provision of AFRRI-developed software applications, or on-going membership, include the following selected examples: the NATO Human Factors and Medicine Panel Symposium; the International Atomic Energy Agency Working Group; the NATO Research Task Group 006 for Radiation Injury and Medical Countermeasures; the International Standards Organization; the National Institute of Allergy and Infectious Diseases; the National Council on Radiation Protection and Measurements; the Department of Homeland Security; the 2003 National Disaster Medical System Conference; the International Congress of Radiation Research; the 2003 Sixth Annual Force Health Protection Conference; and, the World Space Congress.

Six Defense Technology Objectives (DTOs) guide the thrust of AFRRI's research. A DTO is a specifically recognized high priority element of technology advancement. The product of a DTO is expected not only to enhance military operational capability, but also to address other important issues such as affordability and dual-use application, both of which receive special emphasis in the Defense Science and Technology Strategy. Each of AFRRI's six DTOs supports the Quadrennial Defense Review Transformation Operational Goal to Project and Sustain United States Forces. In direct response to its assigned DTOs, AFRRI has achieved the following selected examples: 1) AFRRI investigators have demonstrated significant radioprotective qualities of a non-androgenic steroid, **5-androstenedial (5-AED)**. The drug has no measurable toxicity at the doses being used to achieve protection; 5-AED is on track for the submission of a possible investigational new drug application to the Food and Drug Administration (FDA) by the end of 2004; 2) the AFRRI Biological Dosimetry Team has developed the **Premature Chromosome Condensation (PCC) Assay**, which could eventually allow the use of radiation dose assessment and diagnostic techniques to aid triage and medical management decisions during field

operations; and, 3) AFRRRI's *Rapid Field-Based Depleted Uranium Detection Assay* has been patented and is expected to transition within the next two to three years. (See Section VII of the Journal for further information on research at AFRRRI.)

OBJECTIVE - Develop institutional research for self study/enhancement.

USU Center for Health Disparities Research and Education. During 2003, the USU SOM Departments of Family Medicine and Medical and Clinical Psychology were awarded a \$7 million grant from the National Institutes of Health (NIH) National Center on Minority Health and Health Disparities, to sponsor the USU Center for Health Disparities Research and Education, referred to as *Project EXPORT*. *The Center will sponsor the development of workshops and other educational forums that focus on disseminating critical knowledge about health disparities and teaching practical skills in order to maximize culturally proficient healthcare service delivery.* Evelyn L. Lewis, M.D., USU SOM Department of Family Medicine, is the Principal Investigator on the NIH grant; and, Richard Tanenbaum, Ph.D., USU SOM Department of Medical and Clinical Psychology, serves as the Co-Principal Investigator and Project Director. David S. Krantz, Ph.D., Professor and Chair, USU SOM Department of Medical and Clinical Psychology, is the Center Director. (See CURRICULUM RENEWAL and RESEARCH PROGRAMS AND CENTERS in Section II of the Journal for further information on Project EXPORT.)

The USU Center for Medical Genomics and Proteomics Is One of Ten Academic Organizations Funded by NIH. Harvey B. Pollard, M.D., Ph.D., Professor and Chair, USU SOM Department of Anatomy, Physiology and Genetics, is the principal investigator for an NIH-sponsored study on the proteomics of cystic fibrosis; one of ten academic organizations in the Nation to win substantial support (\$12.7 million over seven years) from the NIH, the award will support the USU Center for Medical Genomics and Proteomics. *The Center's state-of-the-art research equipment is being made available to benefit researchers across the University.* (See SELECTED PROFILES OF USU SOM FACULTY in Section II of the Journal for further information.)

GOAL 4: LEADERSHIP: To develop and provide uniformed and Federal leaders for national health care service focused on mission readiness and homeland security.

OBJECTIVE - Ensure that faculty and alumni achieve positions of leadership in the Department of Defense and the Federal government.

USU School of Medicine Alumni Provide Continuity and Leadership for the MHS.

USUHS graduates are exceeding the original expectations of Congress when the University was established, thus ensuring physician continuity and leadership for the Military Health System... The USUHS-unique training centered in preventive medicine and combat-related health care is essential to providing superior force health protection and improving the quality of life for our service members, retirees, and families.

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy, Testimony before the Senate Appropriations Committee, Subcommittee on Defense Health, April 30, 2003.**

The SOM graduating Class of 2003 was the twenty-fourth class to receive Medical Degrees from USU. ***As of April 2004***, of the total 3,421 medical school graduates, 2,735 remain on active duty in the Uniformed Services (Army - 1,056; Navy - 789; Air Force - 796; USPHS - 94); and, ***the 2,641 USU SOM alumni on active duty in the Military Health System represent over 22.2 percent of the total physician force in the DoD - 11,901 physicians***. The average USUS physician graduate is serving approximately 20 years on active duty.

An example of the critical role of USU graduates in providing medical readiness was reported to the Congress in both 2002 and 2003, when the Surgeon General of the Navy testified that the retention of uniformed physicians in certain specialties is essential for medical readiness. Overall, the median length of non-obligated service for USU graduates is three times longer than other accession sources. Significantly, in April of 2003, CNA released *Phase II: The Impact of Constraints and Policies on the Optimal-Mix-of-Accession Model* of its major study, Life-Cycle Costs of Selected Uniformed Health Professions. The second of six major findings states: ***policy-makers need to consider the costs and benefits for each accession source. For example, even though USUHS accessions are the most costly (the General Accounting Office has reported that when all Federal costs are included, the cost of a USU SOM graduate is comparable to the cost of an HPSP graduate), their better retention makes USUHS the most cost-effective accession source for filling 0-6 leadership/grade requirements.***

USU graduates have become well respected in their medical specialties and provide continuity and leadership for the MHS, serving in areas of military medicine ranging from special operations and hospitals, to the White House, and the newly established Department of Homeland Security, to

deployments in Afghanistan and Iraq, and to assignments aboard ships at sea or with the Blue Angels. Currently, **Brigadier General Charles Fox, MC, USA, USU SOM Class of 1981**, is serving as the Commanding General at the Brooke Army Medical Center and Great Plains Regional Medical Command at Fort Sam Houston, Texas. **Brigadier General Bill Germann, USAF, MC, USU SOM Class of 1982**, was selected, during 2003, to command the 89th Medical Group, Malcolm Grow USAF Medical Center, at Andrews Air Force Base, Maryland; and, **Brigadier General (select) Thomas Travis, USAF, MC, USU SOM Class of 1986**, is currently serving as the Commander of the 311th Human Systems Wing, Brooks City-Base (formerly Brooks Air Force Base), Texas. ***Examples of promotions to 0-6 during 2003 include the following:*** **Army** - 33 percent of the medical corps officers selected for promotion to Colonel were USU SOM graduates; **Navy** - There were 256 physicians considered for promotion to 0-6, in or above zone; overall, 72 physicians were selected for promotion. Of the 35 USU alumni considered for promotion, 12 were selected, resulting in a 34.3 percent selection rate (as compared to the 27.1 percent selection rate for the non-USU physicians being considered); **Air Force** - 37 physicians were selected for promotion to 0-6; USU SOM alumni represented 32.4 percent of those selected for promotion. (*See Section II, SOM ALUMNI, for further examples of SOM Alumni accomplishments, which are individually provided for each Graduating Class.*)

USU Graduate School of Nursing Alumni Provide Leadership for the MHS.

For military health care providers, *the fight* is different. They must be prepared to care for the sick, save lives, and beat the odds in severe environments. Many people think those odds are diminished severely after an injury on the battlefield. But, with the right preparation in operational readiness, nurses and physicians can make the difference.

- Nursing Spectrum, *Caring for Those in Harm's Way*, Volume 13, No. 6DC, March 24, 2003, page 8.

Numerous USU GSN Alumni Were Providing Leadership for the MHS during 2003; Selected Examples Are Provided.

Captain Geoffrey Kuzmich, CRNA, USAF, NC, GSN Class of 2001, Nurse Anesthesia, was deployed for six months to Yemen, Djibouti, and Qatar in support of Operation Iraqi Freedom. Captain Kuzmich successfully performed many anesthetics, including cases on critically wounded pediatric casualties under austere conditions. ***He has been selected as the Director, Anesthesia Services, for the Air Force Center for Sustainment of Trauma and Readiness Skills (C-STARS)*** at the University of Maryland R. Adams Crowley Shock Trauma Center in Baltimore, Maryland. Selected for his superb teaching skills and trauma anesthesia experience, Captain Kuzmich will replace **Captain John Killpack, CRNA, USAF, NC, GSN Class of 1999; Captain Killpack was the founding Anesthesia Services Director at C-STARS.**

Major David Stamps, CRNA, USAF, NC, GSN Class of 1997, Nurse Anesthesia, was recognized for his expertise in casualty anesthesia care through his appointment on the faculty of the Expeditionary Medical Support (EMEDS) Course, USAF School of Aerospace Medicine, Brooks City-Base, Texas. The EMEDS Course is the state-of-the-art Air Force Casualty Care Course that is attended by all deployed Air Force Medical Service personnel. **Major Jack M. Davis, AN, USA, GSN Class of 1999, Family Nurse Practitioner, is currently serving as the Brigade Surgeon for the 17th Field Artillery Brigade in Balad, Iraq;** he has been deployed since April 3, 2003. (See Section III, GSN ALUMNI, for further examples of Alumni achievements, which are individually provided for each Graduating Class.)

USU SOM Graduate Education Program Alumni Provide Leadership for the MHS.

The military unique curricula and programs of the Uniformed Services University, successfully grounded in a multi-Service environment, draw upon lessons learned during past and present-day combat and casualty care to produce career-oriented physicians, advanced practice nurses and scientists with military unique expertise.

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy, Testimony before the Senate Appropriations Committee, Subcommittee on Defense Health, April 30, 2003.**

The Following Are Selected Examples of the Achievements of the USU Graduate Education Program Alumni.

Class of 1988. Colonel Robert Gum, USA, USU Graduate Program Class of 1988, who received a Master of Public Health Degree from USU, served as the Deputy Command Surgeon for the United States Northern Command at Peterson Air Force Base, Colorado, during 2003. Kevin Tonat, Dr.Ph., USU Graduate Program Class of 1988, who received his Master of Public Health Degree from USU, retired from the United States Public Health Service and served as the Executive Science Officer for Cosmos Alliance Management, based in Washington, D.C., during 2003.

Class of 1994. Commander Margaret A.K. Ryan, MC, USN, MPH, Director, DoD Center for Deployment Health Research, Naval Health Research Center, San Diego, California, USU Graduate Program Class of 1994, who received a Master of Public Health Degree from USU, heads a team at the Naval Health Research Center that has worked on several initiatives to support, directly or indirectly, those uniformed personnel deployed to Operation Iraqi Freedom. Those initiatives include: equipping Naval Environmental Preventive Medicine Unit 5 and several ships (forward deployed) to better detect and rapidly diagnose pathogens causing respiratory illness in service members; assisting with the development of augmented post-deployment health assessments, as required by the Office of the Assistant Secretary of Defense, Health Affairs; partnering with the Centers for Disease Control

(CDC) to address health concerns related to smallpox and anthrax vaccinations; and, standing ready to expeditiously assess the epidemiology of post-deployment health concerns.

Class of 1995. CAPT Maura Emerson, MPH, MC, USN, Force Medical Officer, Military Sealift Command, Washington Navy Yard, USU Graduate Program Class of 1995, who received a Master of Public Health Degree from USU, is responsible for the smallpox and other immunization tracking programs for all of the military and civilian contractors in the Military Sealift Command. CAPT Emerson also received her Medical Degree from USU in 1988. CAPT H. Jeffrey Yund, USN, USU Graduate Program Class of 1995, who received a Master of Public Health Degree from USU, is currently the Preventive Medicine Officer at the Headquarters of the Marine Corps, where he serves as the Principal Advisor for Deployment Health Surveillance and the Smallpox and Anthrax Immunization Programs. CAPT Yund recently stepped down as the Chair of the Joint Preventive Medicine Policy Group.

Classes of 1996 and 1998. Lieutenant Colonel Jeffrey Adamovicz, USAF, Ph.D., USU Graduate Program Class of 1996, who received a Doctoral Degree in Microbiology from USU, served as the Chief of the Bacteriology Division of the United States Army Medical Research Institute of Infectious Diseases at Fort Detrick, Maryland, during 2003. Lieutenant Colonel Mark Arness, USAF, USU Graduate Program Class of 1998, who received a Master of Tropical Medicine & Hygiene Degree from USU, served as an Air Force Preventive Medicine Officer at the Army Medical Surveillance Activity and Defense Medical Surveillance System, during 2003; he was responsible for post-deployment health surveillance and involved in adverse event surveillance following vaccination. CAPT Ken Schor, USN, USU Graduate Program Class of 1998, who received a Master of Public Health Degree from USU, served as the Preventive Medicine Officer at the Bureau of Medicine and Surgery (BUMED), during 2003; he also served as the Principal Advisor to the Surgeon General for Deployment Health Surveillance and the Smallpox and Anthrax Immunization Programs.

Classes of 1999 and 2000. CAPT Ed Kilbane, USN, USU Graduate Program Class of 1999, who received a Master of Public Health Degree from USU, served as a team leader of a forward deployed Naval Environmental Preventive Medicine Unit (NEPMU-7) in a classified operational location, during 2003. Lieutenant Commander Tanis Batsel, USN, USU Graduate Program Class of 2000, who received a Master of Public Health Degree from USU, was assigned as the Chief of the Preventive Medicine Branch for the United States Northern Command and the North American Aerospace Defense Command (NORAD) at the Peterson Air Force Base, in Colorado.

Classes of 2001 and 2002. Major Philip L. Gould, MPH, DTMH, USAF, MC, Preventive Medicine Consultant, Deployment Health Surveillance/Suicide Surveillance, Epidemiology Services Branch, Air Force Institute for Environmental Safety and Occupational Health Risk Assessment, Brooks City-Base, Texas, USU Graduate Program Class of 2001, who received a Master of Public Health Degree from USU, was assigned with deployment surveillance for all of the Central

Command (CENTCOM) and assisting command units at the Air Force Institute for Environmental Safety and Occupational Health Risk Assessment (AFIERA), during 2003. Personnel at AFIERA are at the forefront of surveillance for deployed troops, with responsibilities to provide routine briefs and reports for: the Secretary of Defense; the Assistant Secretary of Defense, Health Affairs; and, the Joint Chiefs of Staff. **Commander Byron Connor, USN, USU Graduate Program Class of 2002**, who received a Master of Public Health Degree from USU, was a member of the forward deployed Naval Environmental Preventive Medicine Unit (NEPMU-2) in a classified operational location, during 2003. (*See Section IV, ALUMNI, for further information on the graduates of the USU SOM Graduate Education Programs.*)

OBJECTIVE - Ensure that faculty and alumni achieve positions of leadership in professional and scientific organizations.

USU Faculty Are Recognized for Leadership and Expertise.

The University's academic programs are consistent with its mission. In particular, the Team notes: the professionalism of the programs, the objectives to develop the student's intellectual and leadership skills, which are prerequisites for strong foundations in medicine, nursing, the biomedical sciences and public health services, and the credentials of the faculty... The faculty demonstrates a strong sense of commitment to the institution, its students and mission. The faculty is uncommonly sensitive to strengths and needs of their students and the students expressed their recognition of this and reciprocal feelings to team members. Faculty is provided several avenues, through the use of an academic pathway system, to establish scholarship and is provided guidance and flexibility so that they can advance in academic rank regardless of eligibility for tenure. The use of this system is regarded as an exemplar to other medical schools.

- Evaluation Team of the Middle States Commission on Higher Education, Report to the Faculty, Administration, Trustees, Students of the Uniformed Services University of the Health Sciences, April 2, 2003, pages 4, 7, and 8.

USU's Public Health Program, with its emphasis on community health, ranks sixth in the Nation according to U.S. News & World Report's 2004 Rankings of America's Best Graduate Schools... "USU's program ranked just below Tufts University, the Medical College of Wisconsin, Northwestern University, Oregon State University and the University of Rochester on the list of the top ten community health master or doctorate programs."

- USU Medicine, U.S. News & World Report Ranks USU Graduate Programs in Top Six, Fall 2003, page 5.

As of November 2003, there were 331 full time faculty members at USU (207 civilians; 124 uniformed officers) with 4,031 off-campus faculty (1,167 civilians; 2,864 uniformed officers). USU faculty members are regularly selected to serve on various study sections for the National Institutes of Health and for other research-granting agencies. Many faculty members, due to their national/international reputations are:

Selected to Serve on Editorial Boards. Colonel Andrew J. Satin, USAF, MC, Professor and Chair, USU SOM Department of Obstetrics and Gynecology, is a member of the Editorial Board of Obstetrics and Gynecology, the premier journal of his specialty; and, Robert E. Goldstein, M.D., Professor and Chair, USU SOM Department of Medicine, serves on the Editorial Boards of the American Journal of Cardiology and the Journal of the American College of Cardiology;

Recognized as Senior Officers and Recipients of Distinguished Awards in a Wide Variety of Professional Organizations. The Chairman of the USU SOM Department of Obstetrics and Gynecology also serves as an Examiner for the American Board of Obstetrics and Gynecology; and, the USU SOM Chairman of the USU SOM Department of Medicine received a *Lifetime Distinction Award* from the American College of Physicians; in addition, the Chairman of the USU SOM Department of Medicine was elevated to Mastership by the American College of Physicians;

Designated to Serve as Consultants or Advisors to the White House, the Office of the Secretary of Defense, and International Schools of Medicine. During 2003, James G. Smirniotopoulos, M.D., Professor and Chair, USU SOM Department of Radiology and Radiological Sciences, was appointed to serve as the Defense Department's Health Affairs Representative to the newly formed National Advisory Council for Biomedical Imaging and Bioengineering. The Council advises Health and Human Services, the National Institutes of Health, and the National Institute of Biomedical Imaging and Bioengineering on matters relating to the conduct and support of research, training, health information dissemination, and other programs that address biomedical imaging, biomedical engineering, and associated technologies and modalities with biomedical applications;

Routinely Selected to Serve on University, Military, and Federal and Professional Organization Committees in a Variety of Leadership and Service Capacities. During 2003, Emmanuel G. Cassimatis, M.D., Professor, USU SOM Department of Psychiatry, and USU SOM Associate Dean for Clinical Affairs, was re-elected to the American Medical Association Council on Medical Education; he continues to serve on the Board of Managers of the Association of Military Surgeons of the United States; and,

Have Achieved National and International Recognition in the Military- Unique Practice of Health Care. During 2002 through 2003, Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry, and Director, USU Center for the Study of Traumatic Stress, served as a member of the Secretary of Defense's 12-member Task Force, *RED NUFF*; he also served as a member of a distinguished Institute of Medicine Committee and *was instrumental in developing and*

advancing a national strategy that integrates mental health into a public health paradigm for terrorism management and response.

(Sections II, III, IV, V, and VII of the Journal include specific recognition of faculty in the SOM, GSN, Graduate Education, Graduate Medical Education, and AFRRI; Appendix C provides selected examples of individual faculty and group achievements.)

GOAL 5: STEWARDSHIP: We will protect and enhance the human and physical resources of the University, optimize productivity, promote a sense of family and community, while emphasizing flexibility in response to changing world conditions.

OBJECTIVE - *USU will recruit, reward, and retain outstanding and diverse students, faculty, and staff.*

Construction Design, Addition of Additional Space, and Renovation Projects During 2003 Help to Retain and Recruit Students, Faculty, and Staff.

Construction of a New Building on the USU Campus. The University was first able to participate in the Military Construction (MILCON) Program in 1999; since that time, the USU President and the Vice President for Administration and Management (VAM) have led extensive coordinating efforts to increase available classroom and administrative space at USU through the construction of a new building. Significantly, on September 25, 2001, USU was informed by the Bureau of Navy Medicine and Surgery (BUMED) that its construction project (***Building E - USU Academic Program Center***) had been placed as a funded project in the Medical MILCON for Fiscal Year 2006. On January 7, 2003, the TRICARE Management Activity (TMA) authorized the design of the USU Academic Program Center at a cost of \$9.6 million and approved the project as an accelerated Program for Design (*the overall project calls for 56,020 gross square feet, to include underground parking; the Program for Design distributes 41,055 gross square feet*).

Navy Base Reallocation of Space to USU Results in Renovation Projects during 2003. Since 1998, the University has coordinated with the National Naval Medical Center (NNMC) for the *reallocation of Buildings 28, 53, 59, 79, and 139 to USU for a total of 48,140 square feet of laboratory and administrative space.* On-going renovation took place, during 2003.

Laboratory Renovations throughout Buildings A, B, C, and D. Laboratory space throughout Buildings A, B, C, and D has been renovated from 1993 through 2003, totalling 35,457 square feet (40.7 percent of the 86,926 square feet of laboratory space on the USU campus). During 2003, \$1,120,926 was funded for laboratory renovations by the USU Facilities Division through collaborative efforts by the VAM; the USU Facilities Division; the Dean, SOM; the USU Vice Presidents for Research and Resource Management; and, the Navy Public Works Center (PWC).

Strategic Planning for Facilities Maintenance. Eight years ago, USU coordinated with PWC to develop a five-year facilities maintenance plan for the USU complex; that plan has now evolved into the current *Project Listing Process*. As all documentation has already been completed with PWC, the Project Listing Process enables USU to utilize year-end funding. Projects totalling \$11,943,378 were

obligated by the end of 2003. As a result, the USU campus is well maintained and reflects excellent stewardship on the part of the USU leadership.

(See STEWARDSHIP at the end of this Section of the Journal for detailed information on the construction of Building E, the Navy allocation of Space to USU, renovation of laboratory space, and facilities maintenance.)

Approval of USU Faculty Salary Schedules Is Essential for the Retention and Recruitment of Qualified Faculty. The Principal Deputy Assistant Secretary of Defense (Force Management Policy) approved salary schedules for the USU AD employees during July of 2003. Significant to these efforts is the acquired ability for USU senior management to pay up to Executive Level I for any position that has been designated as essential and where the University must pay higher than the salary schedules to recruit and retain exceptional faculty and staff; the salary schedules were updated during January of 2004 to reflect the current Executive Level I pay level. These on-going efforts are essential in order to attract and retain mission-essential faculty and staff at the University, which, in turn, enhances USU's ability to attract quality students.

USU Efforts for Human Capital Development.

Development Activities. During 2003, **Cindy C. Wilson, Ph.D., Professor, USU SOM Department of Family Medicine**, coordinated on behalf of her department with the SOM Offices of Faculty Affairs and Medical Education to sponsor numerous courses and seminars, which strongly supported faculty development at USU. During 2003, 232 USU faculty members earned over 359 hours of continuing education. The USU Mentor Program and the USU Toastmasters International Club received support and guidance, throughout 2003. In addition numerous training opportunities were provided to the USU civilian workforce: 140 training vouchers and 60 on-line subscriptions for computer-related training for the Microsoft Office Suite; and, 634 employees were trained on-site, to include 150 attendees at the Ethics Training Classes. *(See ORGANIZATIONAL CULTURE, Personal Development and Retention, which follows in this Section of the Journal for further information.)*

Cultural Diversity, Orientation, and Recognition Activities, Strengthened by the Timely Sharing of Information. During 2003, the USU Equal Employment Opportunity (EEO) Special Emphasis Program offered six major events to reinforce both the understanding of, and the appreciation for, the cultural diversity that exists throughout USU. The events were attended by over 1,250 members of the USU community. Since October of 2000, USU has provided formal sessions of the USU Orientation Program to 413 new, civilian and uniformed members of the USU community; 157 employees attended three sessions held during 2003. During 2003, the USU President personally presented service awards to designated employees at their work sites; the Office of Military Personnel approved, processed and presented 92 awards for the USU military personnel. In addition, the 2002 Edition of the USU Journal, the *USU Cost Avoidance Fact Sheet*, the *USU Briefing Paper* summarizing the current USU Journal,

and on-going issues of USU Medicine have communicated the personal and group accomplishments and efforts of the USU community via hard copies, web sites, and CD-ROMs. (See *ORGANIZATIONAL CULTURE, Communicating Equal Opportunity Principles and Appreciation of Diversity*, in this Section of the Journal for further information.)

OBJECTIVE - USU will work to ensure that all USU initiatives and activities are characterized by the principles of ethics and accountability.

Cost-Avoidance Generated for the Department of Defense and the USU Ethics Program Ensure Accountability and Ethical Standards for USU.

USU 2003 Fact Sheet on Cost Avoidance. A four-page USU Fact Sheet on Cost Avoidance has been documented and produced since 1997. The Fact Sheet reflects an in-depth coordination effort led by the Vice President for Administration and Management with the School of Medicine (SOM) Clinical Departments, the USU Office of Continuing Education for Health Professionals (CHE), the USU Military Training Network (MTN), the SOM Office of Graduate Education, and the Graduate School of Nursing (GSN). Documentation was finalized, during May of 2003, to include four USU programs (***Clinical and Consultative Services - \$12,190,375*** data is now available to show that the average number of hours of patient care and consultation provided each year is over 140,000 hours; 154 USU faculty members provided 147,607 hours during 2003; ***CHE - \$2,653,448***; ***MTN - \$13,007,208***; and, ***Graduate Education - \$1,430,000***), which validated that **\$29.3 million of cost-avoidance** was generated by USU for the Department of Defense, during 2003. This self-reporting survey has become increasingly important in USU's on-going effort to document its significant products and services. (*This subject is discussed in more detail under OPTIMIZATION, which follows in this section of the USU Journal.*)

Office of Government Ethics Review Finds USU Ethics Program Provides Quality Advice and Counseling Services. The Office of Government Ethics conducts periodic program reviews to evaluate agency ethics programs throughout the Executive Branch of the Federal Government. These reviews are conducted to ensure compliance with *Standards of Ethical Conduct for Employees of the Executive Branch*. The USU Ethics Program was reviewed in the Fall of 2002 and a report was issued on December 10, 2002. The report highlighted that the University... ***continues to operate a strong and meaningful ethics program*** and provides... ***high quality advice and counseling services***. The report concluded... ***we are pleased to report that the University's Ethics Program continues to comply with applicable ethics laws and regulations***. There were no recommendations for improvement of the USU Ethics Program. On December 13, 2002, the Office of Government Ethics issued an electronic newsletter, which read in part... ***the University, Congressionally established to train men and women for careers as medical officers in the military services and Public Health Service, faces unique ethics challenges, which it successfully addresses***. The USU Ethics Program continued its activities and support functions, throughout 2003.

RELEVANCE - MISSION ACCOMPLISHMENT

USU Graduates Provide Continuity and Leadership and Ensure Medical Readiness.

The School of Medicine. *Continuity and leadership ensure both readiness and the preservation of lessons learned during combat and casualty care*; these were significant factors that motivated the Congress of the United States and the Executive Office of the President to recommend and approve the establishment of USU and the Health Professions Scholarship Program (HPSP) as complementary sources of accession for uniformed physicians. In 1972, Public Law 92-426, *the Uniformed Services Health Professions Revitalization Act*, established the HPSP to be a flexible source for the quantity of physicians required by the Armed Forces; and, *USU was established to provide a cadre of military medical officers who would serve a career as active duty physicians and effectively ensure continuity and leadership for the MHS.*

Continuity.

As the Executive Agent of the Uniformed Services University of the Health Sciences (USUHS), I would like to comment on the extraordinary achievements of the University... USUHS graduates with retention rates averaging twenty years of active duty service, now represent over 22 percent of the total physician officers on active duty in the Armed Forces. And, as provided to the Congress during 2002, the median length of non-obligated service for physician specialists in the Military Health System, not including USUHS graduates, is 2.9 years; however, the median length of non-obligated service for USUHS graduates is 9 years. USUHS graduates are exceeding the original expectations of Congress when the University was established, thus ensuring physician continuity and leadership for the Military Health System.

- Vice Admiral Michael L. Cowan, Surgeon General of the Navy, Testimony before the Senate Appropriations Committee, Subcommittee on Defense Health, April 30, 2003.

With the graduation of the 24th School of Medicine (SOM) Class in May of 2003, 3,421 uniformed officers had been granted Medical Degrees. *As of April 2004, the 2,641 USU physicians on active duty in the Armed Forces represented 22.2 percent (one out of every five) of the 11,901 physicians on active duty in the Army (Total Army Physicians - 4,218; USU Physicians - 1,056), Navy (Total Navy Physicians - 3,983; USU Physicians - 789), and Air Force (Total Air Force Physicians - 3,700; USU Physicians - 796);* the congressional founders had hoped for a representation of ten percent. (In addition, there are 94 USU SOM alumni on active duty in the United States Public Health Service; therefore, as of April 2004, a total of 2,735 USU SOM graduates remained on active duty.)

Leadership. The overall retention for USU graduates from the Class of 1980 through April of 2004 (24 SOM classes) is 80 percent; the Congress had originally envisioned retention rates close to 70 percent. In accordance with this extraordinary retention, recent reviews have documented that one, out of every two SOM alumni who has completed his/her residency training, is in a significant operational or leadership position in the MHS.

Two In-Depth Studies Reflect that USU SOM Graduates Are the Most Cost-Effective Accession Source for Filling Senior Positions in the MHS and USU SOM Alumni Are Well Prepared for, and Succeed in, Operational and Leadership Positions. During 2003, the Center for Navy Analysis (CNA), conducted an in-depth study entitled, *Life-Cycle Costs of Selected Uniformed Health Professions*, part of which included the development of a Cost Model Methodology. In Phase II of the study, CNA used the cost and historical retention patterns from Phase I, in addition to current constraints and business practices. CNA, in its summary report of Phase II, page one, stated that ***USU is the most cost-effective accession source for filling 0-6 grade physician requirements.*** This directly validates the September 1995 GAO Report, *Military Physicians - DoD's Medical School and Scholarship Program*, page 43, which states that ***43 out of 44 commanders of major military medical units perceived that physicians from the University have a greater overall understanding of the military, greater commitment to the military, better preparation for operational assignments, and better preparation for leadership roles.*** Without a doubt, the continuity and leadership provided by the USU SOM alumni ensure medical readiness and the preservation of lessons learned for the MHS.

Medical Readiness.

I want to extend my congratulations to you, the leadership and the faculty at the Uniformed Services University for your exemplary performance in receiving a ten-year accreditation with commendation from the Middle States Commission on Higher Education. This is a notable achievement, and it reflects a successful, long-term commitment to the highest levels of professional medical education for this Nation's Military Health System. The quality of your graduates continues to serve as a testament to the quality of the teaching that was endorsed by the Middle States Commission. You and your staff continue to make significant contributions to our Nation's military readiness and our national medical preparedness.

- **The Honorable William Winkenwerder, Jr., M.D.,
Assistant Secretary of Defense, Health Affairs, Letter
to the USU President, July 22, 2003.**

USU is the Nation's only University dedicated to ensure medical readiness for the MHS. In the December issues of both 1998 and 2001, the Association of American Medical Colleges (AAMC) Reporter recognized USU as the ***one place where the physicians of tomorrow do get thorough preparation to deal with the medical aspects of chemical and biological terrorism. USU students learn how nuclear, biological, and chemical agents act on the human body and what to do in the event of***

a suspected exposure - from detection to decontamination and medical countermeasures. The MHS must provide quality health care during humanitarian, civic assistance, or operational contingencies. This critical medical response requires that physicians in the MHS be provided a solid background in tropical medicine and hygiene, parasitology, and the use of epidemiologic methods and preventive medicine. USU students are provided with approximately 130 hours of study in these areas, compared to about 13 hours found in the typical civilian medical school curriculum. In addition, the multi-Service environment of USU facilitates the students' understanding of the cultures and vocabularies of the United States Army, Navy, Air Force, and Public Health Service, which ensures two of the essential components of readiness: *flexibility and continuity during joint service operational contingencies.* And, the USU SOM has implemented innovative efforts to meet the evolving requirements of medical readiness: the newly established National Capital Area Medical Simulation Center and the USU Patient Simulation Laboratory; the SOM Department of Biomedical Informatics; and, the recently established interdisciplinary graduate program, Emerging Infectious Diseases (*see Section II for a detailed description of these SOM programs*). As mentioned above, in December of 2001, following the terrorist attacks of September 11th, the AAMC Reporter featured USU and reconfirmed the findings reported in its earlier article: *Large-scale terrorist attacks and biological intimidation campaigns on American soil have sent shockwaves of change rippling through every layer of society. Each unexpected new challenge requires an adjustment in preconceptions and contains a practical lesson for the future. But at USUHS, it is learning as usual. Students have been explicitly trained to provide a medical response to terrorism scenarios like the ones that are playing out in the United States and abroad today.*

The Graduate School of Nursing.

As Army Nurse Corps officers in the USU Master Degree Family Nurse Practitioner Program, our education further prepares us to live out our motto - Ready, Caring, Proud.

Operation Bushmaster provided a scenario portraying a hostile environment. The week-long exercise (conducted in San Antonio, Texas) allowed for Advanced Practice Nursing and School of Medicine students to work together in a field environment under simulated battlefield conditions. We students found ourselves triaging and aggressively maintaining patient care as second nature. Biological and chemical agents played a much bigger part in our scenarios than we had experienced in previous training. The threat of these weapons was ever-present in our training scenarios as well. With the assistance of battlefield telemedicine and satellite communication with stateside facilities, such as the Walter Reed Army Medical Center in Washington, D.C., we were able to describe afflictions and send photos of patients for consultation, diagnosis, and treatment.

- Nursing Spectrum, *Caring for Those in Harm's Way*,
Volume 13, No. 6DC, March 24, 2003, pages 8-9.

In 1993, Congress directed the initiation of a demonstration program for the preparation of family nurse practitioners to meet the needs of the Uniformed Services. In the short time since its

establishment, the USU Graduate School of Nursing (GSN), with the strong cooperation and support of the Federal Nursing Chiefs, has: 1) recruited a qualified faculty; 2) successfully established curricula for the Family Nurse Practitioner, Nurse Anesthesia, and Perioperative Clinical Nurse Specialist options in its Master of Science in Nursing (MSN) Program; 3) identified accredited clinical practice sites and completed memoranda of understanding (MOUs) for those relationships with 21 military treatment facilities, to include an additional 111 non-DoD, Federal, and civilian clinical sites; 4) developed and implemented an administrative structure that provides for faculty and student participation in the overall governance of the GSN; 5) submitted self-studies and received maximum terms of accreditation for its MSN Degree Program from its three professional accrediting entities; 6) received formal approval from Health Affairs, Office of the Secretary of Defense, as a permanently funded DoD Program on February 26, 1996; 7) initiated, implemented, and continuously reviewed the outcomes evaluation process for its academic program (*on February 26, 2002, credentialing scoring information released by the American Nurse Credentialing Center's Commission on Certification showed that of the 15 GSN Family Nurse Practitioner graduates who took their certification examination, all 15 passed with a mean score of 123.3, the highest ever achieved; and, seven of the ten graduates in Nurse Anesthesia scored a perfect 600 on the Council on Certification of Nurse Anesthetists Certification Examination, during 2003*); 8) initiated curricula and governance reviews; 9) collaborated with the Department of Veterans Affairs and utilized new technology to establish distance learning options (*resulting in the DoD's first virtual graduation at the advanced level and a total of 70 virtual graduates*); 10) established a Doctoral Program in Nursing Sciences with the enrollment of its Charter Class in the Fall of 2003; and, 11) as of April 2004, granted Masters of Science in Nursing Degrees to 207 advanced practice nurses (*including 7 MSNs granted through distance learning*) with over 80 percent of its graduates remaining on active duty. All GSN graduates have passed their certification examinations with greater than a 97 percent pass rate on the first attempt. The GSN has gained recognition as the first advanced practice nursing school in the United States to serve the Uniformed Services with a clear mission of ***Learning to Care for Those in Harm's Way***.

Advanced Degrees Earned Through Distance Learning. The GSN has enjoyed an on-going, successful seven-year collaborative relationship with the Department of Veterans Affairs (VA). The 20-month VA/DoDDistance Learning Program has been recognized as a model for cost-effective collaboration. ***At its inception, it was the first program in the Nation to offer a complete nurse practitioner curriculum via distance education.*** The collaborative efforts of the GSN with the VA in the area of distance learning successfully demonstrated a cost-effective form of advanced education where nursing students received advanced training in critically-required specialty areas, while maintaining their current positions at the VA medical centers. Twenty-six students, through a *virtual commencement exercise*, graduated from the VA/DoD Distance Learning Program on May 18, 1999; an additional student completed requirements during August of 1999, bringing the total to 27 graduates from the first class. The virtual graduation was broadcast from USU and linked with eight VA Medical Centers located across the United States. All graduates were eligible to sit for the American Nurses Association Credentialing Examination for Adult Nurse Practitioners. This graduation marked the first virtual advanced-level graduation for either the VA or DoD. Outcome data from present students, alumni, and employers continue to reflect high levels of satisfaction with the distance learning program. A second class, with 33 students located in ten VA Medical Centers, graduated on May 15, 2001. And, a third class of ten students graduated on May 13, 2003. *To date, 70 individuals have successfully graduated from this exceptional distance learning program.* The program was halted following the third graduation because the VA had reached

its target goal for Nurse Practitioners. To ensure that other Federal entities could easily access the lessons learned during this Program, a joint report was issued by the GSN and the VA Nursing Strategic Healthcare Group, in November of 2000. The report, *The VA/DoD Post-Master Adult Nurse Practitioner Distance Learning Program - From Concept to Graduation*, documents, in chronological order, the formulation of the partnership between the DoD and the VA, the conceptual stages and developmental processes, learning strategies, course evolution, assessment methodologies, clinical experiences, and the transmission effectiveness for the entire program. Future initiatives between the GSN and the VA are being considered with an emphasis on improving nursing practice and health care for veterans, to include the newly established GSN Doctoral Degree Program. (See Section III for a detailed description of this GSN program.)

A New Doctoral Degree Program in Nursing and a Clinical Nurse Specialist Option Are Established. To meet the evolving requirement for nursing research relevant to the MHS, the United States Public Health Service (USPHS), and other Federal Health Systems, in March of 2002, with the approval of the Federal Nursing Chiefs, the GSN began the process for the development of a ***Doctoral Program in Nursing***. The new Program will prepare nurses to be uniquely qualified as leaders in research, education, and clinical practice to serve in the MHS, the USPHS, and other Federal Health Systems. Additionally, with the well-recognized national shortage of both staff nurses and nursing faculty, GSN doctoral graduates must be prepared to augment faculty requirements at educational organizations and to serve as researchers for studying health care in the MHS, USPHS, and other Federal Health Systems. *A Doctoral Program that has a focus on the MHS, as well as the USPHS and other Federal Health Systems, is not available at civilian universities; no other institution is better positioned than the USU GSN to provide a Doctoral Program with such a unique focus.* The new program accommodates both full-time and part-time students and will incorporate aspects of both distance and alternative learning. *The GSN welcomed its first doctoral students in the Fall of 2003; three students were admitted into the full-time program and are expected to complete their degree requirements, by 2006. Ten students matriculated into the part-time option; they are expected to complete their degree requirements, by 2008.*

In addition, the Federal Nursing Chiefs identified a need for a *Clinical Nurse Specialist (CNS) option in the GSN MSN Degree Program*, in June of 2001. The new program option was presented to, and favorably received by, the USU Executive Committee, in January of 2002; next, it was presented to the USU BOR and received formal approval, on February 27, 2002. The Perioperative Clinical Nurse Specialty (PCNS) option within the GSN MSN Degree Program began with the Class of 2005, which matriculated eight uniformed officers, in June of 2003; the Class of 2006, which will begin, in June of 2004, is projected to consist of nine students representing the TriServices.

In Addition to the SOM and GSN Alumni and Achievements, Five Other OSD-Recognized, Significant Areas of Support and Products Are Provided by USU for the MHS.

Clinical Support for the Military Health System. *As reported in the 2003 USU Cost Avoidance Fact Sheet*, during their course of teaching, the USU faculty provided over 147,607 hours of clinical care at the Army, Navy, and Air Force Medical Treatment Facilities (MTFs) in the National Capital Area. Without this significant provision of support during 2003, the MTFs would have had to augment their medical staffs by 147,607 work hours in order to maintain the level of patient care within the direct care system of the MHS.

The USU SOM Graduate Education Programs. *As of April 2004*, the SOM Graduate Degree Programs have conferred a total of 798 advanced degrees: 242 Doctors of Philosophy; 15 Doctors of Public Health; 76 Masters of Science; 430 Masters of Public Health; 5 Masters of Science in Public Health; 26 Masters of Tropical Medicine and Hygiene; and, 4 Masters of Military Medical History. *As reported in the 2003 USU Cost Avoidance Fact Sheet*, 41 uniformed officers received advanced degrees (37 Masters Degrees and 4 Doctoral Degrees). The USU SOM Graduate Education Programs are responsive to the special needs of the Military Health System; a detailed discussion on the superb responsiveness of the USU Graduate Education Programs is provided in Section IV of the Journal.

The USU SOM Office of Graduate Medical Education. The USU Office of Graduate Medical Education (GME) provides essential support for the MHS in that it serves as the Administrative Office and provides oversight for the National Capital Consortium (NCC). The USU SOM Office of GME collects and evaluates data on DoD GME programs to ensure academic and scientific excellence; and, it provides consultation and advice for the Dean of the SOM, the President of USU, and others throughout the MHS on military-unique medical curricula. During 2003, all of the GME programs in the National Capital Area were under the cost-effective sponsorship of the NCC, bringing the current total to 65 programs. The NCC, by supplying leadership and resources, complies with the Accreditation Council for Graduate Medical Education (ACGME) Institutional Requirements and ensures that Consortium-sponsored programs comply with ACGME program requirements (*see Section V of the Journal for further information*).

The USU Office of Continuing Education for Health Professionals and the USU Military Training Network. The USU Office of Continuing Education for Health Professionals (CHE), to include the Military Training Network (MTN), provides significant, cost-effective and relevant support for the MHS by facilitating the continued professional growth of health care professionals, throughout the MHS. In carrying out its principal responsibilities, *as reported in the 2003 USU Cost Avoidance Fact Sheet*, CHE sponsored continuing medical education for 719 activities with an attendance of 5,208 physicians; provided continuing nursing education for 62 activities with an attendance of 1,378 nurses; approved 25 programs of Category II (non-ACHE) continuing education credit for 480 members of the American College of Healthcare Executives; and, provided one continuing education activity for 4 psychologists. The DoD sites affiliated with the USU MTN are approved to conduct self-sustained resuscitative and

trauma medicine training. This continues to prove cost-effective for the MHS because it eliminates the need to pay premium training costs for civilian resuscitative and trauma medicine programs. As reported in the 2003 USU Cost Avoidance Fact Sheet, 223,735 DoD personnel were trained through the USU MTN (*see Section VI of the Journal for further information*).

USU Serves as the Academic Center for 2,864 Active-Duty Faculty in the MHS. USU serves as the Academic Center for academic and research activities for 2,864 active-duty, off-campus USU faculty located throughout the MHS. USU on-site faculty have sponsored, hosted, or participated in the major conferences held by the MHS, during 2003; in addition, military relevant consultation is continuously provided to the MHS and other Federal agencies by the internationally recognized experts within the University's multiple centers, departments, programs, and institutes. As addressed in this Section of the Journal, *the military-relevant research conducted at USU, in collaboration with many hundreds of off-campus USU faculty assigned throughout the MHS, addresses critical issues for the Armed Forces*. The knowledge documented by the on-site and off-site USU faculty, through their collaborative research, is opening new avenues to: enhance the quality of clinical care; and, better control, diagnose, protect, and provide treatment for millions of MHS beneficiaries.

(All of the products and services, described above, are resourced as part of the operating budget of the University and are discussed throughout this report.)

ACCREDITATION

I want to extend my congratulations to you, the leadership and the faculty at the Uniformed Services University for your exemplary performance in receiving a ten-year accreditation with commendation from the Middle States Commission on Higher Education! This is a notable achievement, and it reflects a successful, long-term commitment to the highest levels of professional medical education for this Nation's Military Health System. The quality of your graduates continues to serve as a testament to the quality of the teaching that was endorsed by the Middle States Commission. You and your staff continue to make significant contributions to our Nation's military readiness and our national medical preparedness.

- **The Honorable William Winkenwerder, Jr., M.D.,
Assistant Secretary of Defense, Health Affairs, Letter
to the USU President dated July 22, 2003.**

The Middle States Association of Colleges and Schools.

Background. The University is accredited by the Middle States Association of Colleges and Schools Commission on Higher Education (MSA/CHE). The MSA/CHE is an institutional accrediting agency recognized by the United States Secretary of Education and the Commission on Recognition of Postsecondary Accreditation. Following its establishment in 1972, USU received *candidate for accreditation status* from the MSA/CHE in 1977, and has retained accreditation since 1984. In order to maintain the accreditation of the educational programs within the School of Medicine and the Graduate School of Nursing, the University must receive accreditation from the MSA/CHE. Accreditation by the MSA/CHE is an expression of confidence in an institution's mission and goals, its performance, and its resources. Based upon the results of an institutional self-study and an evaluation by a team of peers and colleagues assigned by the MSA/CHE, accreditation attests to the judgment of the MSA/CHE that an institution has met the following criteria: it is guided by well-defined and appropriate goals; it has established conditions and procedures under which its goals can be realized; it is accomplishing its goals substantially; and, it meets the standards of the MSA/CHE.

In 1993, the University underwent a successful institutional self-study and a reaccreditation site visit by the MSA/CHE. As requested by the MSA/CHE, a Periodic Report was submitted by USU to the MSA/CHE in June of 1998. In July of 1998, the MSA/CHE reported that the USU Periodic Report was... ***to be applauded for its serious and candid review of the areas of concerns pointed out by the Middle States Evaluation Team in 1993.*** The MSA/CHE correspondence further emphasized that... ***it is clear that USUHS is responding to its internal and external environments and preparing aggressively for the future.*** On December 1, 1998, the USU President was notified by the MSA/CHE that the University had been granted accreditation, with no follow-up required. The next evaluation visit by the MSA/CHE was scheduled for the Spring of 2003.

Preparation for an Evaluation Visit. The MSA/CHE does not prescribe a particular institutional planning process. However, it does strongly suggest that planning be conducted within the context of the institution's goals, priorities, resources, and commitments. This means, at a minimum, that the institution has: carried out a thorough examination of its mission; reviewed its internal and external environments to form preliminary estimates of its strengths, weaknesses, opportunities, and threats; developed and implemented a formal system for setting priorities and for developing budgets, strategies, activities, and timetables; and, devised an evaluation procedure for systematically reviewing self-study planning, the self-study process, and self-study findings and recommendations. A steering committee must be established that is responsible for providing leadership to the entire self-study process, to include: determining the key issues for the self-study; preparing the design; developing charges to the subcommittees and coordinating their work on the various issues studied; ensuring that the timetable is implemented as planned; arranging for one or more campus hearings to review drafts of the self-study; and, overseeing the completion of the final self-study report. In accordance with the above, the USU President established a steering committee to draft a self-study design proposal; the design proposal was submitted to the MSA/CHE staff liaison, in April of 2001, for review and approval. The MSA/CHE liaison visited the USU campus on May 18, 2001, and met with members of the USU administration, the Board of Regents, and students and faculty; the outcome of the visit was quite positive, with only one recommendation for USU on the inclusion of information on how outcomes assessment would be integrated into the self-study document. The self-study design was revised to include the MSA/CHE liaison's recommendation and received approval in August of 2001. During September of 2001, the University established fifteen self-study subcommittees. Draft reports were scheduled for submission to the steering committee, beginning in early February of 2002; subcommittee final reports were due to the steering committee in May of 2002. The steering committee reviewed and merged the subcommittee reports into one comprehensive report for the MSA/CHE. A draft of the comprehensive report was circulated to the University for review and comment. Revisions were incorporated, as appropriate, into the draft document by the steering committee prior to the final review by the Office of the USU President; copies were then submitted to the MSA/CHE. The submission of all required documents to the MSA/CHE was completed, during February of 2003.

A Middle States Evaluation Team Visits the University. Following the receipt and review of the USU Self-Study, an Evaluation Team representing the Middle States Commission on Higher Education visited the USU campus on March 30 - April 2, 2003. The Team indicated a positive review of the University upon the conclusion of their visit. ***On July 1, 2003, the University President was notified by the Middle States Commission on Higher Education that USU had received accreditation with commendation with the next self-study to be conducted during 2012-2013.***

Fourteen Accrediting Entities Ensure that Educational Standards Are Met by the University.

In addition to the MSA/CHE accreditation, the following thirteen professional organizations continue to authorize accreditation for the University's schools and programs:

SOM: 1) the Liaison Committee on Medical Education (LCME); 2) the Accreditation Council for Continuing Medical Education (ACCME); 3) the Council on Education for Public Health (CEPH); 4) the American Psychological Association (APA) Committee on Accreditation; 5) the Accreditation Board for Engineering and Technology (ABET);

GSN: 6) the National League for Nursing Accrediting Commission (NLNAC); 7) the Council on Accreditation of Nurse Anesthesia Programs (COA); 8) the American Association of Colleges of Nursing Commission on Collegiate Nursing Education (AACN/CCNE);

University: 9) the Nuclear Regulatory Commission (NRC); 10) the American Association for the Accreditation of Laboratory Animal Care (AAALAC); 11) the American Nurses Credentialing Center's Commission on Accreditation; 12) the American College of Healthcare Executives (ACHE); and, 13) the State of Maryland Department of Health and Mental Hygiene Board of Social Work Examiners.

(Individual discussions on the accreditation of the School of Medicine, the Graduate School of Nursing, the Graduate Education Programs, the Graduate Medical Education Program, and the Office of Continuing Education for Health Professionals are provided in Sections II, III, IV, V, and VI of this report.)

OPTIMIZATION - **OSD RECOGNITION OF USU's MULTIPLE PRODUCTS**
THE JOINT MERITORIOUS UNIT AWARD
THE GENERATION OF COST-AVOIDANCE
CENTER OF NAVY ANALYSIS REPORTS

Thank you for your letter and the information on the Uniformed Services University of the Health Sciences (USUHS) as well as the 2002 Edition of the USU Journal. It is gratifying to see the University provide continuity and leadership for ensuring medical readiness. Alumni are highly trained and will no doubt continue their tradition of providing first-rate Military Health System support. The Cost Avoidance Fact Sheet is further evidence of your commitment and dedication... Please convey to Admiral Zimble my deep appreciation for the hard work he and the people of USUHS are doing for those of us in uniform.

- **General Richard B. Myers, Chairman of the Joint Chiefs of Staff, Letter to USU, November 20, 2003.**

OSD-Conducted Surveys Recognize USU's Academic Certification and Faculty Credentials. In mid-1997, Management Reform Memorandum 3, Office of the Secretary of Defense (OSD), called for a study of the educational and professional development programs sponsored by OSD. That study and the efforts of the Defense Reform Task Force led to the Defense Reform Initiative's decision to establish an Office of the Chancellor for Education and Professional Development. Throughout 1997 and 1998, the USU Vice President for Administration and Management (VAM) coordinated the University's participation in intensive surveys on streamlining education throughout DoD. The University provided inclusive responses to the Office of the Deputy Assistant Secretary for Civilian Personnel Policy; those responses included all of the services and products resourced by USU as part of its operating cost. ***The OSD-conducted surveys mark the first official OSD recognition of the multiple products of USU in addition to its medical school graduates.*** As a result of those surveys, and based on the average course length of the continuing education efforts of the University, OSD analysts identified approximately 188 student man years, *in addition to*, the 814 (as reported in November of 2003: SOM - 674; GSN - 66; Graduate Education - 74) uniformed students who are traditionally credited, each year, to USU.

During 1998, in response to DoD's Defense Reform Initiative Directive 41, a two-part survey on faculty credentials was conducted by the USU VAM for use in the development of a blueprint for the Office of the Chancellor to be established within OSD. ***The Office of the Deputy Assistant Secretary for Civilian Personnel Policy concluded, as in August of 1997, that USU had the strongest academic certification and faculty credentials among all activities surveyed.***

USU Comprehensive Annual Faculty Listing Report. As part of an on-going process for sharing information with OSD reference the credentials of the USU faculty, the USU Vice President for Administration and Management coordinates and publishes a comprehensive Annual Faculty Listing Report. During November of each year, all full-time faculty members (*331 full-time USU faculty during 2003 - 207 civilians; 124 uniformed officers*) are counted in the totals of the Department where each

holds his or her primary faculty appointment. Although it only captures a point in time, the annual report documents the unique and wide-reaching, collaborative relationships of the University with its off-campus faculty (*4,031 off-campus faculty during 2003 - 1,167 civilians; 2,864 uniformed officers*). Since the initial report completed in 1998, recommendations from the USU community have been incorporated so that the following information is included within the annual report: 1) totals of full-time faculty (civilian and uniformed faculty members are identified by name); 2) the tabulation of academic titles, in accordance with USU Instruction 1100; 3) totals of part-time faculty (identified by name); 4) totals of off-campus faculty (civilian and uniformed off-campus faculty are identified and totaled by academic titles); and, 5) totals of civilian faculty with tenure or with tenure pending are identified by name. All of this information is broken out by Department or Activity; it is then combined and totaled for the School of Medicine or the Graduate School of Nursing; then, all totals are combined to form an inclusive summary for the University. A copy of the 2003 Annual Faculty Listing Report was provided on November 15, 2003, to the USU President, Deans, Department Chairs, Activity Heads, the USU Board of Regents (to include the Assistant Secretary of Defense for Health Affairs), and the USU Executive Committee (the Surgeons General and their staffs).

OSD Joint Meritorious Unit Award Recognizes the Multiple Products of USU. On December 11, 2000, the Secretary of Defense awarded the Joint Meritorious Unit Award to the University. *This significant award documents OSD's recognition of the essential mission, exceptional service over the past decade, and the multiple cost-effective programs of USU* (the SOM, the GSN, Graduate Education Programs, Graduate Medical Education, Continuing Education for Health Professionals, the Military Training Network, Clinical Support for the MTFs, etc.). Public Law 92-426, *the Uniformed Services Health Professions Revitalization Act of 1972*, mandated that the University should meet the special needs of the Military Health System (MHS) through the provision of uniquely trained, career physician officers who would ensure continuity and leadership for the MHS. As validated by the Secretary of Defense in the citation for the Joint Meritorious Unit Award, the University has exceeded the goals set by the early visionaries who established USU.

In addition to the Multiple Products and Services of USU, Four USU Programs Generated 29.3 Million Dollars of Cost-Avoidance, during 2003, for the Military Health System. Critical to the University's efforts for optimization, the Middle States Association of Colleges and Schools Commission on Higher Education has granted accreditation to USU from 1984 through 2013. This essential accreditation, with commendation, has enabled the University to support and generate cost avoidance for the MHS through its multiple educational programs, all of which are accredited by a total of thirteen independent accrediting entities, in addition to the Middle States Commission on Higher Education. In meeting the mandates of its establishing legislation and the standards for accreditation as an academic institution, *USU provides multiple services and products for the Military Health System (MHS), all of which are recognized by the Office of the Secretary of Defense.*

The Alumni of the USU School of Medicine. *(Stated totals are effective through April of 2004.)* The principal product of USU continues to be its 3,421 USU SOM uniquely trained, career-oriented physicians who are prepared to practice military medicine in the multi-Service environment of USU; and, as a result, USU ensures continuity and leadership for the MHS; ***the 2,641 USU SOM alumni on active duty in the Armed Forces represent 22.2 percent of the 11,901 physicians on active duty in the MHS*** (the Army has a total of 4,218 physicians on active duty, of which, 1,056 are USU graduates; the Navy has a total of 3,983 physicians, of which, 789 are USU graduates; and, the Air Force has a total of 3,700 physicians, of which, 796 are USU graduates). In addition, 94 USU SOM alumni continue to serve on active duty in the United States Public Health Service, for a total of 2,735 USU SOM alumni who continue to serve their Nation in the Uniformed Services. The overall retention for USU SOM graduates from the first graduating Class of 1980, through April of 2004, is 80 percent; and, of the USU SOM alumni who have completed their residency training, almost one out of every two USU graduates holds an operational or leadership position.

The Graduate School of Nursing. *As of April 2004*, the fully accredited USU Graduate School of Nursing (GSN) has provided 207 Masters of Science in Nursing Degrees to advanced practice nurse graduates through its MSN Program options in Nurse Practitioner and Certified Registered Nurse Anesthesia with over 80 percent remaining on active duty; ***as of April 2004, all 207 GSN graduates have passed their certification examinations with greater than a 97 percent pass rate on the first attempt***; during 2002, at the request of the Federal Nursing Chiefs, the GSN developed and received approval from the USU Executive Committee and USU Board of Regents to implement a Doctoral Degree Program in Nursing and a Perioperative Clinical Nurse Specialist option in the MSN Degree Program; students matriculated into both programs, during 2003.

Clinical Services Provided by USU/SOM/GSN on-site Faculty. In 2003, during their course of teaching, the USU faculty provided over 147,607 hours of clinical care at the Army, Navy, and Air Force Medical Treatment Facilities (MTFs) in the National Capital Area. ***As reported in the 2003 USU Cost Avoidance Fact Sheet, the annual, manpower cost avoidance generated by the USU faculty through this clinical support (147,607 hours) was conservatively estimated at \$12,190,375.***

The SOM Graduate Education Programs. *As of April 2004*, the SOM Graduate Degree Programs have conferred a total of 798 Basic Science Degrees. ***The annual cost avoidance generated by the USU SOM Graduate Education Programs for the MHS, as reported in the 2003 USU Cost Avoidance Fact Sheet, through the conferring of advanced degrees upon 41 uniformed officers, was estimated at \$1,430,000.***

The USU Office of Continuing Education for Health Professionals and the Military Training Network. The USU Office of Continuing Education for Health Professionals (CHE), to include the Military Training Network (MTN), provides significant, cost-effective support for the MHS by facilitating the continued professional growth of health care professionals throughout the MHS. ***As reported in the 2003 USU Cost Avoidance Fact Sheet, because CHE and MTN bring training to the military health care providers, an annual, estimated cost-avoidance of \$15,660,656 was generated during 2003 for the MHS.***

The SOM Office of Graduate Medical Education. The USU Office of Graduate Medical Education (GME) provides cost-effective support for the MHS in that it: serves as the Administrative Office and provides oversight for the National Capital Consortium (NCC); collects and evaluates data on DoD GME programs to ensure academic and scientific excellence; and, provides consultation and advice for the Dean of the SOM, the President of USU, and others on military-unique medical curricula. During 2003, all of the 65 GME programs in the National Capital Area were under the sponsorship of the NCC.

USU Serves as the Academic Center for the MHS. During 2003, USU continued to serve as the Academic Center for academic and research activities for 2,864 active-duty, off-campus USU faculty located throughout the MHS; USU on-site faculty have sponsored, hosted, or participated in the major conferences held by the MHS; in addition, military relevant consultation is continuously provided to the MHS and other Federal agencies by the internationally recognized experts within the University's multiple centers, departments, programs, and institutes. As addressed in this Section of the Journal, *the military-relevant research conducted at USU, in collaboration with many hundreds of off-campus USU faculty assigned throughout the MHS, addresses critical issues for the Armed Forces.* The knowledge documented by the on-site and off-site USU faculty through their collaborative research is opening new avenues to: enhance the quality of clinical care; and, better control, diagnose, protect, and provide treatment for millions of MHS beneficiaries.

(All of these products and services are resourced as part of the operating cost of the University and are discussed throughout the USU Journal.)

Two Studies by the Center for Navy Analysis on Retention and Cost-Effectiveness Recognize the Critical Requirement for USU SOM Graduates. An example of the critical role of USU SOM graduates in the MHS was reported, during February of 2001, when the Center for Navy Analysis (CNA) provided data on medical retention to the Navy Surgeon General for use in his response to the Senate Appropriations Committee. The Navy Surgeon General informed the Congressional Committee that his most undermanned specialties were general surgery and all surgical subspecialties, orthopedic surgery, diagnostic radiology, anesthesiology, and urology. Many of these specialties are critical wartime specialties and shortfalls could have a negative impact on medical readiness. The Navy response stated the following... ***Overall, the median length of non-obligated service for physician specialists averages only 4.4 years. That average drops to 2.9 years when USU graduates are excluded; the median length of non-obligated service as a specialist for USU graduates is 9 years.***

In April of 2003, CNA released *Phase II: The Impact of Constraints and Policies on the Optimal-Mix-of-Accession Model* from its major study, *Life-Cycle Costs of Selected Uniformed Health Professions*. The second of six major CNA findings states... ***Policy-makers need to consider the costs and benefits for each accession source. For example, even though USUHS accessions are the most costly*** (when including all Federal costs, a 1995 General Accounting Report (GAO) found that USU and HPSP Scholarship graduates are comparable in cost), ***their better retention makes USUHS the most cost-effective accession source for filling 0-6 grade requirements in the MHS.*** Thus the outstanding retention rates of USU SOM graduates ensure that critical wartime specialties are filled; medical readiness requires the continuity and leadership provided by the USU SOM alumni.

Summary. The strengthened relationship of the University with OSD and OSD's recognition of the numerous cost-effective programs of USU is documented by the following: 1) the OSD surveys of 1997 and 1998, which officially recognize the multiple products, academic certification, and faculty credentials of USU; 2) the awarding of the Joint Meritorious Unit Award to USU by the Secretary of Defense, which specifically recognizes the multiple, cost-effective programs of USU; 3) the cost-avoidance generated by the University for DoD during 2003 (estimated at \$29.3 million); and, 4) the two studies by the Center for Navy Analysis (CNA), which document both the outstanding retention rates of the USU SOM graduates and the resulting cost-effectiveness of utilizing USU alumni to fill leadership positions, throughout the MHS.

ACADEMIC CENTER FOR THE MILITARY HEALTH SYSTEM

Following his service in both World War II and the Korean War and his review of the medical capabilities during the Vietnam War for the United States Senate, he became dedicated to preserving the lessons learned in military medicine; he concurred with *Congressman F. Edward Hebert's philosophy that America needed an academic home for military medicine...* USUHS became a part of his overall commitment to the preservation of the hard-won knowledge of the battlefield, the absolute priorities of preventive medicine, the tremendous achievements of uniformed research, and the need for an academic home for military medicine.

- **The Honorable Strom Thurmond, the United States Senate, Congressional Record, In Remembrance of Brigadier General Vorley (Mike) Rexroad, USAF (Retired), November 12, 2002, pages S10832-S10833.**

Active-Duty, Off-Campus USU Faculty Total 2,864. Multiple USU academic and research activities contribute to the medical knowledge and technology base available to the MHS. During 2003, 2,864 active-duty, off-campus USU faculty members, throughout the MHS, collaborated with the University through academic and research efforts. *Through these collaborative efforts, USU serves as the Academic Center for those military medical officers and health care providers who seek to advance their military careers and their knowledge of uniformed health care.* For their valuable service to the University, these active duty, off-campus faculty members are awarded appropriate academic rank. **This section provides selected examples of military relevant conferences or academic activities sponsored by, or collaborated with, the University; all of which document why USU is serving as the Academic Center for Military Medicine.**

2003 Proceedings of the 16th Conference on Military Medicine - Enhancing Readiness: Implementing Change in Military Medical Education. The University continued to serve as the Academic Center for Military Medicine through the planning, presentation, and publication of the proceedings for the 16th Conference on Military Medicine - *Enhancing Readiness: Implementing Change in Military Medical Education*, which was held on the USU campus from June 17-20, 2002, with 120 attendees. The military medicine conferences are annual continuing education activities, which focus specifically on current challenges facing military medicine. Distinguished speakers included senior representatives from Health Affairs, the Offices of the Surgeons General, the Army Medical Command Center, and USU. Conferees were divided into four working groups to focus on **four key aspects of military medical education:** *content; methods of learning; outcomes measurement; and, certification.* Four objective areas were prioritized and provided a framework for the identification of key curricular components; **the four objectives were:** *Emerging Technologies; Emerging Threats; Ethical Considerations; and, Changing Missions and Operations.* The content group built directly upon

the foundation laid by participants in the 15th Annual Conference on Military Medicine (held in June of 2001). Despite overlap among the four areas, the division into four areas provided a useful framework for the identification of key curricular components. Objectives within each domain were categorized as *need to know*, *ought to know*, and *nice to know*; they were then further prioritized within each of those categories. This provided a guideline for inserting elements into the continuum of military medical education; however, the participants did not identify areas that might be cut back within the current curriculum. ***An Executive Curriculum Committee under the leadership of the Dean, USU SOM, was identified to coordinate the incorporation of these recommendations as part of an on-going process of curriculum renewal.***

The Proceedings of the 16th Annual Conference on Military Medicine were published in Military Medicine, the International Journal of AMSUS, Volume 168, No. 9, September 2003. Nine articles were published in the AMSUS Journal: 1) *Perspectives on Military Medicine*; 2) *Anthrax: Lessons Learned from the U.S. Capitol Experience*; 3) *Surgical Simulation: A Clinical Perspective*; 4) *Assessment and Outcomes in Medical Education*; 5) *Opportunities for Certification in Military Medicine*; 6) *The Future of Medicine in the U.S. Marine Corps*; 7) *Military Unique Curriculum: Identifying and Prioritizing Content*; 8) *Measuring Outcomes for Military Medical Education*; and, 9) *Certification in Military Medicine*. This documentation now serves as a resource for the entire MHS and is being utilized by the USU SOM, during on-going curriculum reviews, to ensure that the USU SOM graduates are appropriately trained to meet the special requirements of military medicine.

Activities of The Center for the Study of Traumatic Stress, USU SOM Department of Psychiatry. The USU SOM Center for the Study of Traumatic Stress, CSTS, established in 1987, is continuously sought out, both nationally and internationally, for its consultative, educational, and research capabilities in the area of traumatic stress. During 2003, the CSTS continued to conduct research on the neurobiology of traumatic stress and the psychological and behavioral responses to such events as the attack on the *USS Cole* in October of 2000, the attacks on the Twin Towers and the Pentagon in September of 2001, the October 2002 Sniper attacks in the Washington, D.C. area, and the on-going war in Iraq. Twelve major projects were funded during 2003, with over six million dollars, from the following sources: the Department of the Army; the National Institutes of Health; the National Alliance for Research on Schizophrenia and Depression; the National Alliance for the Mentally Ill Research Institute; the National Institute on Drug Abuse; the Substance Abuse and Mental Health Services Administration of the Department of Health and Human Services; the Stanley Foundation; and, the United States Marine Corps. The Director of the CSTS, **Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry, Director, USU Center for the Study of Traumatic Stress**, served on the Institute of Medicine Committee on Responding to the Psychological Consequences of Terrorism. ***His military unique expertise was instrumental in developing and advancing a national strategy that integrates mental health into a public health paradigm for terrorism management and response.*** This new model is of substantial consequence as it demonstrates how *disaster psychiatry*, a singular specialty significantly contributed to by the forging of military medicine and USU faculty health care leaders in the 1980's, has become recognized, valued and regarded as an integral component for strengthening homeland security in this Century. The Committee's recommendations have been

published in Preparing for the Psychological Consequences of Terrorism: A Public Health Strategy, the National Academies Press, Washington, D.C., 2003. (See Section II, *RESEARCH CENTERS AND PROGRAMS* and *STRATEGIC GOALS* in Section I, for additional contributions of the CSTS, during 2003.)

USU Center Participates in a Three-Day Conference in Laredo, Texas, “Los Dos Laredos.”
The USU Center for Disaster and Humanitarian Assistance Medicine (CDHAM) was established in 1998, under the USU SOM Department of Military and Emergency Medicine, to advance the understanding and global delivery of disaster medical care and humanitarian assistance. During 2003, CDHAM personnel attended a conference entitled, ***Binational Communication to Enhance Public Health***, in Laredo, Texas, which addressed issues of public health safety along the United States and Mexican Border. The CDHAM presentation, ***Response to Bioterrorism with High Technology***, promoted commercial, off-the-shelf technologies in telemedicine that are evaluated as part of CDHAM’s Operations and Technology Cell for use in consequence management settings. The conference had over 250 attendees and was affiliated with the United States-Mexico Border Health Association (USMBHA), which the CDHAM has supported over the past three years. The CDHAM also took part in a five-day symposium, ***Bioterrorism and Emerging Infectious Diseases Conference***, in Mexico City, Mexico, which was hosted by the United States Navy, Office of Naval Research. **Craig H. Llewellyn, M.D., Professor and Past Chair, USU SOM Department of Military and Emergency Medicine, Director, USU Center for Disaster and Humanitarian Assistance Medicine**, presented lectures concerning bioterrorism and consequence management in relation to humanitarian assistance/disaster response. In addition, the CDHAM Director was a member of a team engaged in bilateral United States - Mexico meetings concerning critical infrastructure protection in Mexico City, Mexico. (See Section II, *RESEARCH CENTERS AND PROGRAMS*, and *STRATEGIC GOALS* in Section I, for additional contributions of the CDHAM, during 2003.)

10th Annual Faculty Senate Research Day and Graduate Student Colloquium - 2003. The 10th Annual Faculty Senate Research Day and Graduate Student Colloquium were held at the USU campus on May 14-15, 2003. This year’s theme was ***From Bench to Bedside and Battlefield: Translational Research at the Nation’s Medical School***. This theme focused on an important area in biomedical research - the need to bridge the gaps between scientific knowledge and clinical practice; and, it also reflected USUHS’ special role in both civilian and military biomedical research. The two-day event brought approximately 250 individuals to the USU campus, including researchers from affiliates such as the National Naval Medical Center, the Walter Reed Army Medical Center, the National Institutes of Health, the Howard Hughes Medical Institute, and the Centers for Disease Control and Prevention, as well as other prominent DoD organizations, and civilian universities and hospitals. **Elias Zerhouni, M.D., Director of the National Institutes of Health**, delivered the Plenary Lecture.

On May 14th, two symposia were presented: *New Confidentiality and Privacy Regulatory Requirements in Human Research: Use of Tissues, Tissue Banking, Databases, Consent Forms and*

Everything Else (chaired by **Richard L. Levine, Ph.D., Assistant Vice President for Research**, and presented by **Eric Marks, M.D., Professor, USU SOM Department of Medicine, and Associate Dean for Faculty Affairs**); and, *Brain Injury - The Disease Amongst Us*, which consisted of four presentations by accomplished individuals from USU (**Denes V. Agoston, M.D., Ph.D., Associate Professor, USU SOM Department of Anatomy, Physiology and Genetics**, and **Geoffrey Ling, M.D., Ph.D., LTC, MC, USA, Professor, USU SOM Department of Neurology**) and the National Institutes of Health (**Jordan Grafman, Ph.D., National Institute of Neurological Disorders and Stroke**, and **John Hallenbeck, M.D., National Institute of Neurological Disorders and Stroke**). The topics of the symposia presented on May 15th (*Emerging Proteomics: Techniques and Applications*; *Biological Response to Hemorrhage: Recent Advances on the Bench and the Battlefield*; *Forefront of Imaging Techniques in Clinical and Basic Science*; and, *The Obesity Epidemic: Scope and Clinical Approaches*) were selected to highlight areas in military and civilian medicine that present particular challenges for translational research. In addition to 35 oral presentations, there were more than 150 poster presentations featuring the research work of the USU community.

The Graduate Student Colloquium was established, in 1980, to promote scholarly interchange between graduate students and the academic community at USU and to recognize the research achievements of USU graduate students. The 2003 Graduate Student Colloquium featured a Career Development Workshop on opportunities for graduate students, symposia, and the *John W. Bullard Lecture*. Six oral presentations by graduate students were followed by *The 2003 Bullard Lecture*, which was presented by **John D. Gearhart, Ph.D., Developmental Genetics Laboratory, Johns Hopkins University**; the title of his presentation was *Human Embryonic Germ Cells: Differentiation and Transplantation*.

ORGANIZATIONAL CULTURE

STEWARDSHIP: We will protect and enhance the human and physical resources of the University, optimize productivity, promote a sense of family and community, while emphasizing flexibility in response to changing world conditions.

- **USU Strategic Plan**, Goal 5, approved by the USU Board of Regents during May of 2003.

Continuous Efforts to Ensure a Diverse Community that Is Powerful, Committed, and Energized. A common challenge for most educational institutions is the goal to recruit and retain highly qualified students, faculty, and staff. As USU works to achieve that goal, it must also strive to reflect the diversity that exists in both the Uniformed Services and our Nation. The five USU Offices of University Recruitment and Diversity (ORD), Student Affairs (OSA), Civilian Equal Employment Opportunity (EEO), Military Equal Opportunity (EO), and the Brigade Commander (BDE) collaborated with the Civilian Human Resources (CHR) Directorate, during 2003, to ensure that the University continued to promote respect, appreciation, and understanding throughout its multi-Service activities. During 2003, the University's emphasis was on encouraging cooperation, development, diversity, communication, and collegiality by: 1) the identification and encouragement of equal opportunity principles and diverse cultures through numerous university forums, individual counseling sessions, recruitment strategies, and community service activities; 2) the timely sharing of relevant information through continuing orientation programs, on-going USU publications, educational web sites, and advanced technology; and, 3) the provision of extensive development and recognition programs for the civilian and uniformed members of the USU family.

Communicating Equal Opportunity Principles and Appreciation of Diversity.

1,250 USU Personnel Participate in Six Community Events. During 2003, the USU Office of Equal Employment Opportunity (EEO), with the volunteered-support of the USU Special Emphasis Program Managers, continued to present USU Community Sessions to reinforce both the understanding of, and the appreciation for, the cultural diversity that exists throughout the University. The *January 2003 Dr. Martin Luther King Jr. Birthday Celebration: Remember! Celebrate! Act! A Day On, Not A Day Off!*, featured **Mr. Thomas C. Bryant, Jr., Director, TCB Corporation**, who presented the Keynote Address to over 200 faculty, staff, and students from the USU community. Continuing in the tradition of cultural awareness at the University, throughout the month of February, a series of e-mails were distributed to the USU community recognizing National Black History Month. The e-mails offered the opportunity for everyone to discuss the achievements and contributions of prominent African Americans in our society and provided pertinent information on related cultural events in the National Capital Area. On March 14, 2003, ten members of the USU family accepted an invitation from the Under

Secretary of Defense for Personnel and Readiness to attend an observance in recognition of National Women's History Month; these individuals attended the dedication of the Women in Military Service For America Memorial at the Arlington National Cemetery. And, members of the USU EEO staff planned and organized a trip for 30 individuals to visit the National Holocaust Memorial Museum, in Washington, D.C., on April 30, 2003. On May 7, 2003, 60 members of the USU family met to acknowledge *Asian American/Pacific Islander Month*; the 2003 theme was: *Salute to Freedom*. One of the USU family members, **CAPT Cynthia Macri, MC, USN, Vice President, Recruitment and Diversity**, and special guest, **Doctor Takumi Izuno, International Agricultural Advisor (Retired)**, delivered a moving message describing their vision for the new Millennium from their perspective as Asian-Americans; the audience participated during an enthusiastic discussion session following the presentation. Then, on September 10, 2003, 50 members of the USU community met to recognize *Hispanic Heritage Month*; the 2003 theme was: *Honoring Our Past, Surpassing Our Present, and Leading Our Future*. The Keynote Address was presented by **Doctor Alfonso R. Batres, Chief Officer, Readjustment Counseling Service, Veterans Health Administration**. The presentation was followed by a discussion session with audience participation. Also, during September of 2003, coordination by the **USU Brigade Chaplain, CDR Kevin Bedford, USN**, resulted in, *A Day of Remembrance: To Honor the Memory of the Victims of the Terrorist Attacks on September 11, 2001*; the event acknowledged the second anniversary of the terrorists' attack on our Nation. The USU family either gathered together to share a moment of silence, or remained at their work stations to view a tribute distributed via the USU web site; all demonstrated their respect and sense of loss for those whose lives were ended by the violent event.

Student Professional Activities and Meetings. The coordinating efforts of the USU Office of Recruitment and Diversity (ORD) with members of the four student groups: *the Asian Pacific American Medical Student Association (APAMSA)*; *the Student National Medical Association (SNMA)*; *Women in Medicine and Science (WIMS)*; and, *the American Medical Student Association (AMSA)* resulted in the successful sponsoring of numerous meetings and activities, throughout 2003. Membership is open to all students; and, all USU students are encouraged to attend programs sponsored by these organizations. The objectives, programs, activities and officers for all of the ORD-sponsored student groups can be viewed on the USU web site at <www.usuhs.mil> by clicking on the *Recruitment and Diversity Link*, followed by a second click on *Student Organizations*. During 2003, students were provided with an opportunity to socialize and network with faculty and physicians in a relaxed atmosphere; opportunities were provided for discussing important issues such as residency selections, physician and patient expectations, professional demands in the military setting, effective time management, and societal minority and gender issues.

The *USU Chapter of the Asian Pacific American Medical Students Association (APAMSA)* is a student organization, which was initiated under the sponsorship of ORD, during 2001, and functioned throughout 2003. The APAMSA was founded, in 1995, and represents over 16,000 Asian Pacific American medical students; the organization serves as an advocate for the advancement of quality medical care for the growing Asian Pacific community. In November of 2003, the USU APAMSA Chapter co-hosted the 10th Annual Meeting of APAMSA along with APAMSA Chapters from Johns Hopkins University, Georgetown University, the University of Maryland, and George Washington University; the event was held on the campus of the George Washington University Medical Center. The USU Chapter developed the program and coordinated the selection and approval of speakers for the meeting. Also, during 2003, the USU medical students continued their weekly and/or monthly trips to public schools (elementary,

middle and high schools) to discuss medicine, science, research, and the medical profession with young students through a community outreach program entitled, the **Youth Science Enrichment Program (YSEP)**. The YSEP is designed to motivate America's youth toward medical, scientific, and military careers; USU students serve as role models for the youth with whom they interact. Plans for 2004 were developed to strengthen the USU student presence among four area high schools located in underserved areas of the Washington Metropolitan Area. (See *THE OFFICE OF RECRUITMENT AND DIVERSITY*, which follows in this Section of the Journal, for further discussion on these ORD activities.)

Provision of Formal and Informal Counseling. The USU Offices of Equal Employment Opportunity (EEO), Equal Opportunity (EO), Recruitment and Diversity (ORD), and Student Affairs (OSA) continued to provide formal and informal counseling throughout the Year 2003. The EO Office did not have to provide formal counseling sessions to the uniformed members of USU, during 2003; the EEO Office provided five informal counseling sessions to the USU civilian staff, during the past year. Beginning in September, OSA conducted well over 300 formal interview and counseling sessions for the first and third-year medical students; in addition, ORD also continued to provide individual counseling sessions for numerous uniformed students. The success of these counseling sessions is evidenced by the ever increasing appreciation and respect shared among the individual members of the University. In addition, the EO representatives for the USU Brigade provided EO training for all uniformed members of the University, during 2003; the training sessions addressed diversity, acceptance of others, management of difficult situations, and the identification of harassment in both the work place and in the academic setting.

Faculty Senate Outreach Program for Working Mothers. In response to recommendations of the USU faculty and the President of the Faculty Senate, the Office of Administration and Management coordinated the construction and establishment of a Mother's Lactation Room to assist working mothers, who wish to continue breast-feeding their babies after returning to work. The room provides for privacy and is equipped with appropriate furniture, electrical outlets, and a refrigerator for the storage of expressed milk. At the time of its establishment, during 2000, USU was the only DoD entity to provide such a facility. The program continued, throughout 2003.

The USU Center for Health Disparities Research and Education - Project EXPORT. The Liaison Committee on Medical Education (LCME) has stated that medical school faculty and students need to address gender and cultural biases in the delivery of health care and, in general, prepare providers to care for diverse patient populations. Under the direction of **Evelyn L. Lewis, M.D., (CDR, MC, USN, Retired), SOM Department of Family Medicine**, and **Richard Tanenbaum, Ph.D., SOM Department of Medical and Clinical Psychology**, USU has developed a biopsychosocial training program for medical students and residents, nursing students, clinical/medical psychology graduate students, and other prospective health care professionals, faculty, and staff. The **USU SOM Center for the Enhancement of Healthcare Training and Outcomes (CEHTO)** enables the University to comply with the LCME requirements and improves USU's curricula by providing training to optimize patient adherence and enhance health care outcomes. Specifically, CEHTO has been established to: 1) infuse concepts and processes into existing curricula in order to advance a biopsychosocial philosophy and improve cultural proficiency; 2) provide a forum in which students have the opportunity to practice the

skills and strategies addressed in the classroom; 3) facilitate the development of culturally respectful relationships, inside and outside of the USU community; and, 4) evaluate the impact of this initiative and continuously improve and refine the training provided.

During 2003, the University and the SOM Departments of Family Medicine and Medical and Clinical Psychology applied for, and successfully received, a substantial grant from the National Institutes of Health to sponsor the ***USU Center for Health Disparities Research and Education***, referred to as ***Project EXPORT***. **Evelyn L. Lewis, M.D., is the Principal Investigator on the NIH grant;** and, **Richard Tanenbaum, Ph.D., serves as the Co-Principal Investigator and Project Director. David S. Krantz, Ph.D., Professor and Chair, USU SOM Department of Medical and Clinical Psychology, is the Center Director.** As part of *Project EXPORT*, CEHTO will assist in meeting the following objective: to develop workshops and other educational forums that focus on disseminating critical knowledge about health disparities and teaching practical skills in order to maximize culturally proficient health care service delivery. As the staff of *Project EXPORT* work to solidify their operational infrastructure, the new Center is focused on its mission to work with current and future partners, both within the USU and the external community, to collaboratively achieve the best possible health care and treatment outcomes for minority and underserved populations. (See *CURRICULUM RENEWAL and RESEARCH PROGRAMS AND CENTERS in Section II of the Journal for further information on Project EXPORT.*)

Timely Sharing of Information.

The USU Web Is Used to Provide Information Throughout the USU Community. During 2003, the Department of Biomedical Informatics (BID), under the direction of **A. Leon Moore, Ph.D., Professor and Chair, USU SOM Department of Biomedical Informatics**, continued to support the University's educational efforts through its Center for Informatics in Medicine (CIM). Today, CIM hosts over 100 educational web sites for the University; these sites serve on-site and distance learning students, residents, and faculty. Significantly, the Department continued its support for the USU PDA Initiative. Personal Digital Assistants (PDAs) have been issued to three classes of School of Medicine (SOM) and Graduate School of Nursing (GSN) students. The USU PDA Initiative was highlighted at the Symposium of the American Medical Informatics Association, in November of 2002, resulting in the publishing of a paper, *The USU Medical PDA Initiative: The PDA as an Educational Tool*, during 2003. BID continues to fulfill its responsibility for the Clinical WebLog <<http://cweblog.usuhs.mil/>>, which is used by USU SOM students to document experiences, during their clinical years. *CWebLog* is currently used by seven third-year clerkships with access via a web browser and the PDAs issued to the SOM and GSN students. With assistance from the SOM Preventive Medicine and Biometrics (PMB) faculty and the USU Learning and Resource Center (LRC) staff, during 2003, the BID established its second course, *BID-510, Introduction to the Department*, which organizes and teaches *MCB-501, Introduction to Computers for Bioinformatics Computer Skills*; the new course was implemented, during 2004. The Department also continues to support the establishment of a high performance research network at USU, *Internet2*. The BID connection to *Internet2* became operational through the National Library of Medicine and has hosted multiple demonstrations from its USU laboratories.

The 2002 Edition of the USU Journal. To ensure that information was shared with both internal and external customers, the University published and distributed more than 800 copies of the 2002 Edition of the USU Journal, during 2003. Each copy included a CD-ROM; and, all 331 USU faculty members received a copy of the Journal in CD-ROM format. Each Edition of the USU Journal provides an inclusive background on the history and development of the University; it also describes the achievements of the past year and any changes, which may have taken place throughout USU's educational programs, centers, and institutes. The Journal, sometimes referred to as ***The USU Encyclopedia***, serves as a source document for the University's responses to congressional, executive, and general requests for information, throughout each year. This annual report, coordinated by the Vice President for Administration and Management with the University President, documents how relevance, readiness, and optimization are successfully emphasized throughout the University's programs and activities and assesses how the goals of the USU Strategic Plan have been met, during the past year. Numerous letters of acknowledgement and accolades have been received by the University since its initial distribution; selected examples include: the USU Deans, Department Chairs, and Activity Heads; the Deputy Secretary of Defense; the Secretary of the Air Force; the Chairman of the Joint Chiefs of Staff; the Chief of Naval Operations; the Commandant of the Marine Corps; the Surgeons General of the Army, Navy, Air Force, and the United States Public Health Service; the American Medical Association; and, the current Secretary of State.

USU Orientation Program. Since October of 2000 through 2003, the USU Civilian Human Resources Directorate, with the participation of the senior leadership at USU, has sponsored formal sessions of the USU Faculty and Staff Orientation Program for 413 in-coming civilian and uniformed members of the University community: 45 during 2000; 92 during two sessions held in 2001; 119 during three sessions held during 2002; and, 157 trained during 2003. ***The purpose of this on-going program is to present the newly-appointed members of the USU community with the philosophy, goals, policies, and leadership principles of USU.*** Orientation packets with key facts and other selected information, to include the CD-ROM for the current USU Journal, are provided for review and future reference. For example, the USU Office of Environmental Health and Occupational Safety (EHS) briefs the new employees on its initiatives to raise the safety consciousness of the USU researchers and the general community. In addition, since February of 2000, the SOM Office of Faculty Affairs has maintained a Faculty Handbook on the USU web site, which describes the organization and functions of the various components of the University; it serves as a quick guide for the delegation of responsibilities at the University and where to seek information, guidance, or other faculty-related requirements. New faculty members are introduced to the USU web site and encouraged to utilize the above-mentioned information. Since its establishment, the USU Orientation Program continues to successfully promote a positive experience for the new employees and allows them to meet the senior management of USU; orientation sessions are continuing, during 2004.

Personal Development and Retention.

Individual Recognition. Throughout 2003, the USU community worked to build and strengthen cooperation, integrity, trust, and collegiality as well as to reward individual members for their

contributions. An on-going performance evaluation process developed by the Civilian Human Resources Division (CHR) and the Brigade Command ensured that each USU employee received an annual rating and appropriate recognition for his/her accomplishments. During 2003, CHR continued its procedures for tracking individual employee's years of service. The University President personally presented service awards to designated employees at their work sites. The program has been well received; to date, 108 civilian service awards have been presented. And, during 2003, the Office of Military Personnel approved, processed, and presented 92 awards for the USU military personnel: 1 Joint Meritorious Unit Award; 2 Defense Superior Service Medals; 49 Defense Meritorious Service Medals; 20 Joint Service Commendation Medals; 16 Joint Service Achievement Medals; 3 Army Commendation Medals; and, 1 Military Outstanding Volunteer Service Medal.

Training Opportunities Provided to USU Employees. During 2003, the USU Offices of Civilian Human Resources (CHR), Medical Education (MEE), Faculty Affairs (ADF), Research Administration (REA), the Brigade Command (BDE), University Recruitment and Diversity (ORD), Equal Employment Opportunity (EEO), and Equal Opportunity (EO) provided programs and support to assist the University community in its self-development and training requirements. Civilian Human Resources continued to expand the USU Mentor Program by sponsoring 23 participants; both the participants and their mentors received on-going training and guidance, throughout 2003. CHR also sponsored the establishment of a University Toastmasters International Club, in 1999; active participation continued, during 2003, with 25 members. The Executive Leadership and Aspiring Leader Programs have been on-going for some years; four individuals participated, during 2003. Six individuals, who participated in past years, received promotions and were hired at other Federal agencies; and, nine of fifteen participants were eventually promoted and remain at the University. In addition, numerous training opportunities were provided by CHR to the USU civilian work force that were linked closely with the establishment and expansion of Individual Development Plans. *CHR used 140 training vouchers during 2003 and 60 on-line subscriptions for computer-related training for the Microsoft Office Suite.* Through the use of vouchers, USU faculty and staff were provided opportunities to attend off-site computer classes through CompUSA and New Horizons. USU employees were also provided an on-line computer training option through a USU contract with Element University; on-line training allows the student to complete assignments, through the Internet, while at home or at work. *A total of 634 employees were trained on-site*, to include the 150 attendees at the Ethics Training Classes, which were conducted by the Office of the USU General Counsel. On-Site Classes provided by CHR included: *Customer Service* (63 participants); *Basic Personnel Management* (40 participants); *Powerful Communication Skills* (44 participants); *Retirement Planning* (24 participants); *Resume Training* (41 participants); *Supervisory Training* (60 participants); and, *GSA Travel Training* (55 participants).

USU Faculty Attend Development Courses and Seminars. During 2003, **Cindy C. Wilson, Ph.D., Professor, USU SOM Department of Family Medicine**, coordinated, on behalf of her department, with the SOM Offices of Faculty Affairs and Medical Education, to sponsor numerous courses and seminars, which strongly supported faculty development at the University. ***During 2003, 232 attendees earned over 359 hours of continuing education.*** The following are selected examples of the successful activities during 2003, which led to the enhancement of the professional skills of the USU faculty members: 1) *Publishing in Clinical Journals*; 2) *Endnote Survival Strategies*; 3) *Ethics in Clinical Practice*; 4) *Issues in Medical Education*; 5) *The Problem Learners*; 6) *Writing for Impact*; 7) *Meta Analysis in Clinical*

Trails; and, 8) *Presenting Clinical Data*. In addition, the Vice President for Research continued to conduct classes for the USU faculty on the submission of research proposals, throughout 2003.

USU Health Center Tobacco Cessation Program. Established during 2002, and on-going during 2003, the USU Health Center Tobacco Cessation Program is a four-session program designed to help individuals to quit using tobacco products. Most individuals requesting tobacco cessation assistance are cigarette smokers; but, individuals who use smokeless tobacco (dip or chewing tobacco), pipes, cigars, etc., may enroll in the program. The lead for the USU Tobacco Cessation Program for uniformed personnel is **Major Nicole L. Frazer, Ph.D., USAF, BSC, Assistant Professor, USU SOM Department of Family Medicine, and Director, Clinical Health Psychology**; she can be reached at <nfrazer@usuhs.mil>.

The program is based on the guidelines established by the Agency for Health Care Policy and Research (AHCPR; 1996); the Clinical Practice Guideline for Treating Tobacco Use and Dependence (United States Public Health Service; 2000); and, the VHA/DoD Clinical Practice Guideline for Promotion of Tobacco Use Cessation in the Primary Care Setting (2001). The program consists of at least four sessions with the provider including the enrollment session, the quit date session, and two follow-up sessions. The program is a comprehensive behavioral treatment program, which involves behavior modification, stress management skills training, and the use of medications. Six weeks of nicotine replacement therapy involving the nicotine patch are available as part of the program for those participants who are medically qualified. Zyban (bupropion) is also available for eight weeks, beginning with the first enrollment session. Individuals must participate in the tobacco cessation program and attend the sessions to obtain the medications. Research indicates that these medications do not work unless combined with a comprehensive behavioral treatment program. A data base has been created so that all participants can be entered and tracked at three, six, and twelve months following their *quit date*. It is conservatively estimated that twelve individuals have quit smoking since November of 2002, when the program was initiated. Civilian employees at the University, who wish assistance with ending their use of tobacco products, may contact the University Environmental Health and Occupational Safety (EHS) staff at <asorrels@usuhs.mil>.

OSD Confirmation of USU Title 10 Authority. During Fiscal Years 1997 and 1998, there had been a one-year suspension on the inclusion of allowances in the calculation of retirement benefits for the USU Administratively Determined (AD) employees (faculty and staff) who are covered under TIAA-CREF, Fidelity, or any other retirement system not established under Title 5 U.S.C. This issue, which involved USU's Title 10 authority, was resolved with OSD through the coordinated efforts of the OSD Office of the Deputy Assistant Secretary for Civilian Personnel Policy, Washington Headquarters Services, the USU President, and the USU Vice President for Administration and Management. As a result, the inclusion of allowances in the calculation of benefits for USU AD employees was reinstated by OSD for Fiscal Year 1999 and has been continued through the present; current 2004, OSD-approved, AD salary schedules include footnote references that confirm the reinstatement of this benefit.

Legislative Language Removes the Limits of Executive Level IV for the Annual Rate of Basic Pay. Previously, the annual rate of basic pay for USU AD employees was limited to be no more than the rate set for Executive Level IV. In many cases, this limitation resulted in the need for allowances to bring

the total pay up to the limits established by OSD in the USU salary schedules. During the last quarter of Fiscal Year 1998, and following extensive coordination by the Vice President for Administration and Management, the OSD Office of the General Counsel, at the request of the Deputy Assistant Secretary for Civilian Personnel Policy, recommended the legislative change contained in Section 1108 of the Conference Report for the National Defense Authorization Act for Fiscal Year 2000. As a result, when the Authorization Bill for Fiscal Year 2000 was signed, it effectively removed the limitations of Level IV for the USU AD employees; ***as appropriate, the upper pay limits of the USU AD salary schedules are now limited to the rate set for Executive Level I.*** This has proven to be a valuable tool for the recruitment and retention of essential faculty and staff by the USU President and Deans. Implementation actions for the reduction of allowances were initiated and implemented, during 2000, by CHR and continued, as appropriate, during 2003, to the present.

USU Administratively Determined Salary Schedules Are Approved. Previously, the USU salary schedules for the Administratively Determined (AD) employees had remained the same from 1993 through 1997. To address this concern, a Memorandum of Understanding signed by the OSD Office of Civilian Personnel Management Services (CPMS), the Navy Bureau of Medicine, and the USU President successfully resulted in the implementation of annual comparability studies by CPMS. These comparability studies, completed in coordination with the USU Civilian Human Resources Directorate and the USU Faculty Senate Comparability Committee, serve as a critical component in the on-going review, updating, and implementation process for the USU AD salary schedules. As an example of the implementation procedures, when the Principal Deputy Assistant Secretary of Defense (Force Management Policy) approved salary schedules for the USU AD employees on August 25, 1999, an increase in base pay was automatically provided for any AD employees whose base pay was lower than the minimum limits of the new salary scales; this process, based on currently approved salary schedules, has been continued to the present. Updated salary schedules have been continuously approved, since 1998, as follows: in July of each year, revised and OSD-approved salary schedules are effective and implemented based on current data and the CPMS comparability studies; then, in January of each year, the salary schedules are adjusted by CPMS to implement the Executive Level I pay level, as required. The salary schedules were updated during January of 2004 to reflect the current pay level of Executive Level I.

University Recruitment and Diversity.

OBJECTIVE: USU will recruit, reward, and retain outstanding and diverse students, faculty, and staff.

- **USU Strategic Plan**, Goal 5, First Objective, Goal 5, Approved by the USU Board of Regents in May of 2003.

Office of University Recruitment and Diversity. The USU Office of Minority Affairs was established, in 1991, with a mission to increase the participation and advancement of traditionally underrepresented minority and women students, faculty, and staff at the University. The Office of Minority Affairs, under the initial leadership of **Jeannette E. South-Paul, Colonel, MC, USA, Vice President for Minority Affairs**, established numerous programs to especially increase the recruitment and retention of underrepresented minorities at the University. Following COL South-Paul's selection to serve as Chair, SOM Department of Family Medicine, **Charles W. Campbell, Jr., Colonel, USAF, MC, FS**, served as the second USU Vice President for Minority Affairs. In April of 1999, **Carolyn L. Miller, Lieutenant Colonel, USAF, BSC**, was selected as the third USU Vice President for Minority Affairs. During 1999, following extensive discussions with the USU President and the Board of Regents, the University's Strategic Plan was modified to specifically address University recruitment and diversity. Subsequently, during 1999, the Office of Minority Affairs was renamed as the Office of University Recruitment and Minority Affairs; during 2000, strategy sessions to enhance the recruitment efforts of the University resulted in a decision to further modify the office title to the Office of Recruitment and Diversity (ORD). The USU Strategic Plan has continuously retained strategies for both marketing the University and targeting the increased recruitment of women and underrepresented minorities. The Office of Recruitment and Diversity (ORD) has remained committed to increasing the general public's awareness of the University; thus, ORD has continued to market the University and introduce military medicine, USU, and the United States Public Health Service to prospective applicants. By the end of 2001, the following areas were included among the numerous program responsibilities of ORD: on-going recruitment efforts; retention and student support activities; community service; and, the USU Post-Baccalaureate Program.

During 2002, the ORD Mission continued to direct that the USU student body, to the extent possible, should reflect the gender and ethnic representations as found in the Armed Forces of the United States. Following the departure of LtCol Miller on July 31, 2002, a change in leadership occurred with the September 26, 2002 announcement by the USU President of his selection of **Cynthia I. Macri, CAPT, MC, USN, Director of the Health Professional Scholarship Program (HPSP), Naval Medical Education and Training Command (NMETC), to serve as the USU Vice President for Recruitment and Diversity.**

The USU Office of Recruitment and Diversity, ORD, received a significant *shot in the arm*, when the Vice President of ORD began to serve on a full-time basis, at USU, in July of 2003. Under the leadership of CAPT Macri's results-oriented management system, ORD is developing new initiatives in support of the University's Strategic Plan, utilizing her experience, information, and validated recruitment

strategies. CAPT Macri's previous position at the Naval Medical Education and Training Command (NMETC), where she served as the Navy's Director of Medical Department Accessions, included the Armed Forces Health Professions Scholarship Program (AFHPSP) and the Health Professions Loan Repayment Program (HPLRP).

Alumni Liaison Program. The USU Liaison Program involves the recruitment of medical school applicants by USU SOM alumni; these USU SOM alumni serve as superb representatives of the University. During 2003, ORD improved on the already existing Alumni Liaison Program by creating and sending congratulatory letters, under the signature of the University President, to all alumni newly selected to the 0-5 and 0-6 levels. In addition, the letters requested that the alumni partner with ORD, in its various recruitment initiatives. **Ms. Sharon Willis, USU Office of Alumni Affairs**, provided contact information for more than 100 medical officers, who had been newly selected for promotion. Over 25 positive responses were received, resulting in the expansion of alumni volunteers for assisting with recruitment, mentoring, and increasing the visibility of the USU SOM within their individual communities. During 2003, there was an increased effort to utilize human resources efficiently and to share recruitment opportunities with representatives from the Recruiting Commands of the three Armed Services. In addition, both USU and AFHPSP alumni volunteers travel with their local area recruiters and make presentations at undergraduate institutions, *pre-med* groups, and health professions career fairs; these volunteers provide an accurate and realistic assessment of their lives as military physicians.

Provision of USU Recruitment Materials and Recruitment Activities. USU recruitment materials were periodically sent to prospective applicants, throughout 2003. The ORD staff continuously reviewed requests for participation in various recruitment activities, from both national and regional organizations, as well as from individual institutions, from the perspective of cost-effectiveness. Local AFHPSP recruiters were invited to participate, or asked to present information, reference both USU and the AFHPSP, on opportunities for careers in military medicine. Undergraduate Reserve Officer Training Corps (ROTC) Units at various colleges and universities were also contacted when ORD initiated planning for recruitment trips. It was determined, by the ORD staff, that most of the students enrolled in ROTC Units were already familiar with military training and Service etiquette and only required additional information on medical training requirements and potential careers in medicine.

During 2003, ORD, as the centralized office for the recruitment of qualified medical officers, responded to over 700 requests for the continued replenishment of USU and AFHPSP materials. These materials were mailed to Pre-Health Professional Organizations, Reserve Officers Training Corps (ROTC) Units, high school students who visited USU as part of youth summer programs, career fair organizers, undergraduate institutions nationwide, Uniformed Services personnel deployed abroad, and students who took the qualification examinations for medical school and met the minimum score for evaluation, at USU. ORD provided recruitment packets to more than 100 AFHPSP Medical Program Recruiters, during 2003, as part of a joint effort to promote USU and AFHPSP recruitment activities. Additionally, members of the USU community were provided, upon request, with recruitment packets (the USU CD-ROM and the USU and AFHPSP brochures) for distribution at their hometown educational institutions or undergraduate/graduate campuses, professional society meetings, or various geographical sites, while on travel. During the 2003 Christmas and New Year Holiday Season, more than 4,000 packets of recruitment materials were provided to prospective students; by late January 2004, ORD had

received almost 400 replies, which consisted of a combination of e-mails and telephone calls. The ORD staff also designed unique “*Happy Holidays*,” follow-up postcards and mailed them to more than 300 students whose names had been obtained during various visits to campuses and career fairs, during 2003. ORD’s small, but effective, staff continuously defied the odds with each major distribution project; for example, during the same time frame, more than 200 similar packets were mailed to *pre-med* advisors and financial aid officers, whose names had been obtained as a result of CAPT Macri’s attendance at an Association of American Medical Colleges (AAMC) Regional Meeting.

During the 2003 Academic Year, more than 26 visits were made by ORD staff and AFHPSP recruiters on behalf of USU. Visits included: Cornell University; the State University of New York at Binghamton; Syracuse University; the University of San Diego; Stanford University; Northwestern University; the University of Kansas; the University of Florida; the University of South Florida; Morgan State University; the University of California at Irvine; Arizona State University; the University of Texas Pan American; the University of North Carolina Chapel Hill; the University of South Alabama; Rutgers University; Rollins College; Muhlenburg College; Johns Hopkins University; Howard University; the University of Virginia; Hampton University; Ohio State University; Case Western Reserve University; the Massachusetts Institute of Technology; and, the University of Michigan. During 2003, an estimated 3,500 students were introduced to USU at either their respective campuses, or at the various career fairs. As campus visits continue into 2004, the ORD staff continues to evaluate the cost-effectiveness of responding to the many invitations from the colleges and universities seeking USU representation on their campuses.

Continued Efforts to Enhance the Diverse Educational Environment at USU. ORD continues in its efforts to increase the number of women and disadvantaged applicants in the incoming USU classes by increasing the exposure and name-recognition of USU throughout the United States and among globally deployed active duty or reserve units. *During the 2003-2004 USU Admissions Cycle, there was a 17 percent increase in applications from traditionally underrepresented minority or disadvantaged applicants and a 7 percent increase in the number of overall applicants compared to a 3.4 percent increase across the Nation.* Despite the improvements cited above, fewer students from this group elected to attend USU as their first choice of medical schools. A survey is being conducted by ORD to determine which detractors prevented the underrepresented minority and disadvantaged applicants from selecting USU for matriculation. ORD continues to strive to reach out to all potential applicants by offering pre-application mentoring; ORD’s objective is to improve the actual enrollment of such applicants within the next two application cycles. Nationally, the mean percent for the enrollment of traditionally underrepresented minority and disadvantaged students is approximately 11 percent, excluding the three historically black medical schools: Morehouse, Meharry, and Howard Universities. However, the goal of ORD is to reflect the cultural and ethnic diversity within the officer corps of the Armed Forces, which currently stands between 16 and 20 percent, across the three Services.

A comprehensive *National Joint Recruitment Plan* was recently created by **Mr. Peter Stavish, Assistant Dean, USU Admissions and Academic Records**, who can be reached at <pstavish@usuhs.mil>; his research revealed that the majority of medical students were supplied by only 400 colleges and universities across the country. ORD’s goal for 2004 is to implement the *Five States and District of Columbia Model*, developed by Mr. Stavish, to the greatest extent possible. This initial effort will document feasibility and assess cost-effectiveness before expansion to a larger region.

ORD has also requested that a working group be established to revise and update the current USU recruitment video. Advances in technology indicate that the current video might best be replaced with a DVD; the DVD would contain relevant and current information reference the SOM, the GSN, and the Graduate Education Programs at USU (to include new programs such as: the USU Center for Health Disparities Research and Education, referred to as Project EXPORT; and, the expansion of the Continuing Health Education mission). The roles of USU alumni during the recent conflicts in Iraq and in leadership positions in the Department of Homeland Security would also be showcased in the DVD.

Development of an ORD Strategic Recruitment Plan. At the November 2003 USU Board of Regents Meeting, ORD was officially requested to serve as the Coordinator for all recruitment and outreach activities, with an objective to increase the visibility of the University. Ultimately, ORD will be responsible for the development of products, ideas, or advertisements and the consolidation of such efforts by other groups within the University. This does not imply that various components within the University will discontinue creating and distributing brochures and other related material; ORD will be responsible for coordinating with other entities within the University community to develop strategies for attracting a diverse faculty, staff, and student body. ORD is currently working on articulating a comprehensive plan to accomplish this mission.

USU Post-Baccalaureate Program. The University began its one-year Post-Baccalaureate Program on August 9, 1999, and is in its fifth year of operation. The first two participants graduated in May of 2004. Since the program began, all but one of the 12 student participants have successfully matriculated into the USU School of Medicine. Two students are currently enrolled in the program and both are exceeding the minimum academic standard for full acceptance into the incoming SOM class, in August of 2004.

Through this program, USU identifies applicants to the SOM who may benefit from an introductory year consisting of a portion of the first-year SOM curriculum. Students, who achieve a grade of *B* or better, are re-evaluated for full admission to the SOM. The admissions criteria, to include physical and security standards, are the same for the Post-Baccalaureate Program students as for all other SOM applicants prior to matriculation. The Program was originally developed to enhance the cultural, ethnic, and experiential diversity of the educational environment within the USU SOM by offering the opportunity of a Post-Baccalaureate Program to selected students, who identify themselves as members of cultural or ethnic groups traditionally underrepresented in Medicine, or who are otherwise disadvantaged. Students are administratively registered in the SOM Graduate Education Program and receive an annual stipend similar to a first-year graduate education student. The USU Executive Committee initially approved the design, criteria, funding, and evaluation of the Program; each year, this committee evaluates the Program, before commitments are made, to determine its continuation. As in past years, the USU Office of the General Counsel, the Admissions Office, and the ORD staff collaborated to ensure that the Program objectives were met.

Student Support and Outreach Programs. ORD administratively supports four major student groups: the Asian Pacific American Medical Student Association (APAMSA); the Student National Medical Association (SNMA); Women in Medicine and Science (WIMS); and, the American Medical

Student Association (AMSA). Membership is open to all students; and, all students are encouraged to attend programs sponsored by these organizations. The objectives, programs, activities, and the names of the officers of all of the ORD-sponsored student groups can be viewed on the USU web site at <www.usuhs.mil> by clicking on the *Recruitment and Diversity Link*, followed by a second click on *Student Organizations*.

The Asian Pacific American Medical Student Association. In November of 2003, the USU APAMSA Chapter co-hosted the 10th Annual Meeting of APAMSA, in coordination with Chapters from: Johns Hopkins University; Georgetown University; the University of Maryland; and, George Washington University; the conference was held on the campus of the George Washington University Medical Center. The USU Chapter's major contribution was the development of the agenda and the selection and coordination of the approval process for the program speakers. **CAPT Macri, as the USU APAMSA Faculty Advisor**, presented a Surgical Skills Workshop, which was well received. **Lieutenant Colonel John Farley, USU SOM Class of 1995**, presented a lecture on health disparities by highlighting that minority women, who are treated in a bias-free environment, such as the Military Health System, can achieve the same high cure rates for cervical cancer as majority women; whereas, minority women have significantly lower cure rates, in the civilian sector, where a bias-free environment is lacking. Other USU faculty, **RADM Kenneth Moritsugu, M.D., USPHS, Deputy Surgeon General of the United States; Larry W. Laughlin, M.D., Ph.D., Professor and Dean, USU SOM; and, COL Ernest Takafuji, USA (Retired)**, also presented lectures during the conference. These presentations provided an opportunity to promote the extraordinary expertise of the military-relevant and unique training available at USU, in a national forum.

Student National Medical Association. In April of 2003, the Student National Medical Association (SNMA) National Convention was held in Washington, D.C. The USU SNMA student representatives served as hosts for interested applicants and their mentors. Tours were arranged by the USU Brigade to enhance the introduction of SNMA faculty mentors and prospective applicants to the USU campus, curriculum, and educational environment. The conference was well attended and many attendees took advantage of the opportunity to tour the USU campus. Although the number of traditionally underrepresented minority students at USU remains relatively small, SNMA membership is open to all students in the SOM; and, the group continues to be active in recruitment activities and community outreach. ***The Youth Science Enrichment Program (YSEP)*** is an example of the volunteer programs coordinated by the leadership of the USU SNMA Chapter. YSEP is designed to motivate American youth toward careers in Science and Medicine. The students visited numerous schools this past year; they spoke to elementary, middle, and high school students about the value of education in science and medicine. Plans for 2004 are underway to strengthen SNMA's and ORD's presence among four area high schools located in underserved areas of the Washington Metropolitan Area. USU student volunteers continue to serve as role models for the youth with whom they interact.

Women in Medicine and Science. Women In Medicine and Science (WIMS) continues to be active in planning and organizing quarterly programs within the SOM. Examples of the most popular programs, during 2003, were: *How to Play the Lottery and Win* (referring to the third-year clinical rotations); *Specialty Night*; and, *the Women in Operational Medicine Panel*. **Major Pamela Williams, USAF, MC, USU SOM Department of Family Medicine**, volunteered to serve as the USU Faculty Mentor for this student group.

American Medical Student Association. The National Office of the American Medical Student Association (AMSA) invited USU to revitalize its AMSA Chapter. ORD is currently in the planning and organizing phase of this endeavor; the student leader for this new effort is **ENS Diana Macian, MC, USNR.**

The Helping Hands Project.

For years, USU medical students and USU physicians have found the time to serve in free clinics and to help provide medical care to low-income families in the Washington D.C. Metropolitan Area. The patients are citizens who would not otherwise have access to medical treatment. This community free medical care has occurred through the student-led ***Helping Hands Project*** volunteer program. The Project includes three clinics located in Maryland that have been sponsored by the Mobile Medical Care, Inc. The clinics are located at the KenGar First Baptist Church in Kensington; the Shepherds Table at the First Baptist Church of Silver Spring; and, the Adventist Community Center in Takoma Park. The three clinics provide services such as physical examinations, laboratory analysis, the management of acute and chronic diseases, mental health problems, general health concerns, and referrals for X-ray examinations, and specialty and secondary care.

The mission of the Project has been to ensure that people receive stable family health care, when they would otherwise be unable to afford it. The students have continued to uphold the standards of the mission; *no one is turned away*. As a result of this program, the USU students have become acquainted with available community resources and have learned of the health care needs of a diverse population of patients. USU students take patient histories and present them to physicians; they assist in examinations, and, in general, observe the attending doctors. The patients have been treated for chronic problems such as hypertension, depression, arthritis, and diabetes; the students also observe the care provided to acute-care patients. Depending on the clinic, students have assisted with six to fifteen patients during their three-hour shifts. Student volunteers are exposed to people from different backgrounds who have varying requirements, with limited ability to pay for health care services. The *Helping Hands Project* developed into the current program largely due to the vision of a student organizer, **Raymond J. Legenza, a 1996 USU SOM Graduate**. The Office of Recruitment and Diversity has taken great pride in sponsoring this program; the essential physician support is volunteered by the exceptional faculty of the USU SOM Department of Family Medicine. *Helping Hands* has proven to be a significant USU program; it encourages a meaningful contribution of essential health care by USU faculty and students to their neighboring communities. And, it has provided a tremendous experience for the USU students. A national SNMA initiative, the *Helping Hands Clinic* is one example of the volunteer programs coordinated by the leadership of the USU SNMA Chapter. Due to the turnover in the Family Practice Clinic at USU, the *Helping Hands Clinic Volunteer Program* was less active, during 2003, than in previous years. However, plans are underway to revitalize the program, during 2004.

The Office of the Brigade Commander. The USU Brigade Commander is recognized as *the senior active duty officer* of the University and reports directly to the President of USU. It is the responsibility of the Brigade Commander to ensure that the uniformed personnel assigned to the University adhere to the appropriate service specific standards set by their parent Services. In addition, the Brigade Commander assures that the interests of the military members assigned to the University are addressed and that they remain competitive for promotion with their service peers. Under the leadership of the Brigade Commander, the uniformed students, faculty, and staff assigned and reporting to the School of Medicine (SOM), the Graduate School of Nursing (GSN), the Graduate Education Programs, or other USU activities, programs or divisions must participate in all activities and events as they would in any other command of the Uniformed Services. Regular formations are held; physical fitness exercises, standards, and testing are adhered to; performance evaluations are completed and rated; and, uniformed personnel are trained in the appropriate uniformed programs and customs.

A Multi-Service Environment. The USU Brigade provides a clear chain-of-command for all uniformed members, thus allowing individuals to rapidly assimilate into their new units and the multi-service environment of USU. The Brigade Command structure includes three subordinate commands that report directly to the Brigade Commander. These subordinate commands include the Commandants from both the SOM and the GSN and the Commander for the Headquarters Company, who is responsible for all assigned enlisted service members. The SOM has three Company Commanders representing the Army, Navy, and the Air Force; they are specifically assigned to USU to provide for military training in officership and leadership. The Navy Company Commander is also responsible for providing this special training to the Public Health Service students. The Company Commanders are mentors for the students and they deploy with them, during each of the University's field training exercises. The USU uniformed faculty and staff also conduct service-unique training, inspections, and military formations. Similar to the Service Academies, each student class also has its own military command leadership structure. The students rotate positions among the class members, which increases individual exposure in the management of specific assignments, duties, and *command* roles. Tactical, senior medical non-commissioned officers are also assigned to each student company to provide mentorship and to assist the Company Commanders with officership training.

Establishment of the Office of the USU Chaplain. In July of 1999, the Navy Surgeon General approved additional billets for a Navy chaplain and an enlisted assistant at the joint environment of USU. The arrival of the chaplain and his assistant as *the first permanently assigned ministry team at USU* filled a void in pastoral care that had existed since the foundation of the University. Following the establishment of the Office of the USU Chaplain, within the Brigade Command, essential counseling and guidance is now available and provided to the USU students and assigned staff.

The mission of the Office of the USU Chaplain is to support and enhance the quality of life of the USU military personnel, to include their families, through spiritual development, as needs are identified and requested. The Office facilitates the free exercise of religion for USU military personnel and their families. Chaplain ministry is needs-based, performed cooperatively, and executed within a pluralistic environment. Faith-specific Student Associations are formed as needs are identified. USU faculty and staff are encouraged to participate in the Student Association of their choice and to support and/or mentor

the students in their spiritual formation in a similar manner as guidance is provided for the development of academic skills. Within regulations, under the University President and the Brigade Commander, and administered by the Office of the Chaplain, the Student Associations are self-governed to meet the specific needs and interests of their constituents. The areas of Ministry are: 1) Pastoral Care (to include prayer, scriptures, insight, listening, encouragement, and support); 2) Pastoral Counseling (provision of individual, marriage, and family counseling on moral, ethical, emotional, spiritual, or faith issues); 3) Pastoral Visitation (ministry of presence at the University, visitation of the hospitalized and confined, and pre-operative prayer or counseling, as requested); 4) Spiritual Direction (integration and guidance provided to an individual for spiritual development); 5) Observance of Religious Rites (religious observances, command functions, memorial services, and social activities); 6) Classes and Seminars (discussions in the areas of value formation, ethical decision-making, bioethics, and faith-related topics); 7) Literature Ministry (provision of devotional, inspirational, and self-help literature); 8) E-Mail (communication of the *thought-for-the-day* and weekly inspirational thoughts); 9) Referral Service (assistance in locating a place of worship, military or civilian, and counseling referrals for requested guidance outside of the Chaplain's expertise); and, 10) Field Exercises (provide worship services, training, and ministry in the field environment for students and staff).

Development of International Relationships. In the Fall of 2000, the USU Brigade Commander initiated a dialogue with the Commander, German Armed Forces Command, United States and Canada, which resulted in the establishment of the German Troop Duty Proficiency Badge Program at USU, making the University the first United States Armed Forces medical organization, in the Military District of Washington, to gain sponsorship from the German Armed Forces Command for this program.

The program provides USU students and faculty with an opportunity to compete for, and attain, the prestigious ***German Troop Duty Proficiency Badge***, which recognizes excellence in both physical fitness and readiness. Besides being a foreign badge, the award is unique, because earning the badge is strictly based on the abilities of each participant and not dependent on the decision of an awards board. Facilities and logistics for the USU program involve strong community relations with agencies and personnel outside of the University, including the Walt Whitman High School at Fort Meade, Maryland, and the National Naval Medical Center, in Bethesda, Maryland.

In order to earn the badge, individuals must achieve minimum standards involving times and distances, while qualifying in the following events: shot put; long jump; sprint (75 meters for women; 100 meters for men); swim (200 meters); marksmanship (9 millimeter pistol); long distance run (2,000 meters for women; 3,000 meters for men); and, a road march (distances range from 20 to 30 kilometers, depending on age, sex, and type of badge - *bronze, silver, or gold* - that the participant is qualifying for). Participants must also be in good standing with the University/Brigade and pass a first-aid course. There are two main road marches each year, followed by an awards ceremony; the *US/GE Day* is hosted by the Military District of Washington, during the Spring; and, the *GE/US Day* is hosted by the German Armed Forces Command, during the Fall.

Upon successful completion of all events, the German Armed Forces Commander presents each individual with a certificate and badge. Participants may then provide their Unit Awards and Decorations Representatives with a copy of their certificates, which are then forwarded to their respective Service

Major Command Personnel Centers for inclusion in their permanent military records. During 2003, nearly 100 USU medical students and faculty members competed for the German Troop Duty Proficiency Badge.

Official Wear of the Badge: Army and Air Force personnel are authorized to wear this badge on their service dress uniforms; Navy personnel are not authorized to wear the badge.

Assurance of Operational Skills. The Brigade's Operations Department provides the planning, coordination, and logistical support for the USU military field training exercises for the first and fourth-year medical students. The development of plans continued, during 2003, for the major exercises at the University: 1) January 12-24, 2003 - **Operation Bushmaster 01-03**, at Camp Bullis, Texas; 2) June 21 - July 1, 2003 - **Operation Kirkesner** at the Marine Corps Base at Quantico, Virginia; 3) September 10-26, 2003 - **Operation Bushmaster 02-03**, at Camp Bullis, Texas; and, 4) November 5-20, 2003 - **Operation Bushmaster 03-03**, at Camp Bullis, Texas. Through training such as Operations Kirkesner and Bushmaster, USU encourages each uniformed student to develop and maintain the special skills required to earn a leadership position in military medicine (*see Section II, MILITARY UNIQUE CURRICULUM, for further information*).

During the Summer of 2003, the USU Brigade Commander reported that the second year medical students had participated in the following activities: **Army** - United States Army Airborne School; Mountain Warfare School; clerkships at the Army Surgeon General's Office; Operational Emergency Medical Skills Course; Expert Field Medical Badge; and, United States Army Operational Units (e.g., Fort Bragg, Fort McCoy, Fort Carson, Fort Riley, and Vicenza, Italy); **Navy** - Diving School; Aerospace Medicine (*USS Roosevelt*); United States Navy SEALs; Top Gun; Mountain Warfare Training; Amphibious Warfare School; Neuroanatomy Computing; *USNS Mercy* Hospital Ship; the United States Navy Special Warfare Detachment; Tropical Medicine Course, Brazil; and, Sigonella, Italy; **Air Force** - Operational Emergency Medical Skills; Top Knife; Expert Field Medical Badge; Mountain Warfare School; and, United States Air Force Hospitals and Research. From qualifying for the Expert Field Medical Badge, to conducting undersea medical research with the United States Navy SEALs, USU students are developing and maintaining the special skills required to assume leadership positions in uniformed medicine. Additionally, the diverse and exciting training USU students complete during their summer activities helps the University to accomplish the *First Objective of Goal 1, EDUCATION, from the USU 2003-2004 Strategic Plan: USU will provide outstanding education to our students, focused on Military Readiness and Homeland Defense*; and, the *First Objective of Goal 2, MILITARY SERVICE: USU will produce skilled professionals with special orientation to those aspects of Medicine, Science, and Nursing to support the military and Federal health care systems*.

In July of 2003, the Department of Military and Emergency Medicine (MEM) studied Fort Indiantown Gap (FIG), Pennsylvania, as a potential exercise site. The proximity, terrain and equipment resources of FIG made it a very promising site for *Operation Kerkesner* and, possibly, *Operation Bushmaster*. The USU President and the Dean of the School of Medicine traveled to FIG, in September, to meet with the Adjutant General of the Pennsylvania National Guard to ensure that the USU training requirements could be adequately supported, at FIG. Following a favorable determination, the USU President authorized MEM to plan the execution of the June 2004 Kerkesner Exercise at FIG. In December of 2003, the Brigade Commander met with MEM and the Commandant of the School of

Medicine to develop the execution of *Operation Kerkesner* at the new site, to include the incorporation of a new Leadership Development Exercise. The new plan was designed to test FIG's ability to support a combined Kerkesner/Bushmaster Exercise. The Dean of the School of Medicine approved moving *Operation Kerkesner* to FIG and instructed MEM and the USU Brigade to develop a potential plan for a combined Kerkesner/Bushmaster Exercise, in Fiscal Year 2005.

The Brigade Headquarters Company is the enlisted Brigade Command support element for USU and is commanded by the only Marine assigned to the University. In addition to the performance of their military occupation specialties, during normal duty hours, the enlisted members of the Headquarters Company ensure that equipment, supplies, transportation, and personnel are positioned to accomplish all major field exercises, each year. The Brigade is responsible for ensuring that the enlisted personnel at USU are proficient in their operational support skills that enable them to remain competitive for promotion.

Orientation Responsibilities. Another responsibility of the Brigade, during the first quarter of each Academic Year, includes the in-processing requirements for all uniformed students, whether they are matriculating into the SOM, GSN, or the Graduate Education Programs in the SOM. In the case of the 167 first-year medical students for Academic Year 2003, Brigade letters were issued to the incoming students to include a detailed calendar of events outlining their in-processing week. This increased level of detail facilitates the orientation process and eliminates students' concerns over appropriate uniform, classroom, and Brigade requirements. The military aspects of the University are stressed during the first week, as well as the students' responsibilities in their primary role as military officers.

Recruitment Efforts for Underrepresented Communities. The Brigade continued to reach out to the ROTC and underrepresented communities, during 2003. The Brigade's recruitment efforts, during 2003, included presentations on the value of a USU medical education at the following universities: the University of Arkansas at Little Rock; the University of Westminster, Missouri; the University of Mississippi; the University of Missouri, at Columbia; and, Lincoln University, in Jefferson City, Missouri. The membership of **Charles S. Serio, Colonel, MS, USA, USU Brigade Commander**, on the West Point Medical Advisory Selection Committee, continues to give USU exposure to some of the top military academy students in the country.

USU Color Guard. Formal ceremonies have continued to be an important element of military tradition since the earliest armies and navies entered combat. Whether at a retirement, change-of-command, or a unit stand-up, the military goes to great lengths to showcase its command, its people, and its pride in the Nation. Color guards have long been an important part of these ceremonies, and USU is carrying on that tradition, forming its own color guard in 1997. The USU Color Guard is comprised of enlisted members (E-5 and below) from the Army, Navy, and the Air Force. The first major performance of the USU Color Guard occurred at the 1997 USU Graduation; the colors were also presented during the USU Brigade Change-of-Command Ceremony, in 1998, and the Headquarters Company Change-of-Command Ceremony, in August of 2001. This past year, the USU Color Guard has had the opportunity to represent the University and the military at the opening of major sporting events in the local area. During the USU graduations, from 1998 through 2003, the USU Color Guard has brought the colors on stage

during the commencement ceremonies, which are generally held at the National Society of Daughters of the American Revolution Constitution Hall, in Washington, D.C. Also, during 2003, the USU Color Guard performed at the annual *USU Dining-Out Ceremony*, as well as at the National Association of Military Surgeons of the United States (AMSUS) Convention, in San Antonio, Texas.

Officer Indoctrination Training of USU Matriculants. Formal studies were initiated, in 2003, to assess the value of conducting a *Basic Officer Indoctrination Course* on the USU campus for all Army, Navy, and Air Force matriculants to the USU SOM. At the present time, the Surgeons General spend approximately \$500,000 per year to transport and house USU non-prior-service Navy and Air Force matriculants and all of the USU Army matriculants so that they can attend their Service-specific officer indoctrination courses, prior to their arrival at USU. Because of the time constraints that occur due to the timing of college graduations, the notice of final acceptance by USU Admissions, and the receipt of official military orders, some of the USU matriculants have been unable to attend these courses prior to their arrival at USU. Due to the USU requirements for military training during the Summer following the first year of medical school, it is almost impossible for those students, who miss their indoctrination courses, to make them up without impacting on their medical education requirements. The Brigade currently proposes to investigate the efficiency of having all USU matriculants attend a *USU TriService Indoctrination Course* to be held at USU, during July and August, prior to the Brigade orientation and class initiation activities. Topics, which are applicable to all Services, would be held in a large lecture room, while service-specific topic sessions would be held in the smaller USU classrooms. Faculty from USU could be augmented with temporarily assigned instructors, as required by each of the present course coordinators. Incoming students would no longer be required to travel elsewhere, before their arrival at USU, which would accommodate the location of housing for themselves and their families, prior to course commencement. Although cost-savings would be partially offset by the temporary travel and housing for the visiting faculty, the overall savings would still be significant. In addition, each in-coming class would have the opportunity to develop a strong sense of *esprit de corps*, prior to the beginning of classes. This effort would fall under the *USU Strategic Goals 1 and 2, EDUCATION and MILITARY SERVICE*, since USU would be providing an additional level of military educational training specifically for the USU SOM students. *USU Strategic Goal 5, STEWARDSHIP: To protect and enhance the human and physical resources of the University, optimize productivity, promote a sense of family and community, while emphasizing flexibility in response to changing world conditions*, supports the proposed USU effort to coordinate with each of the Services to generate cost-effectiveness for the administrative and financial aspects of the current process for USU SOM student indoctrination.

Goal 5, STEWARDSHIP, of the 2003 USU Strategic Plan includes a requirement for the University to establish an enhanced sense of intramural community. The Combined Federal Campaign is one event, which crosses all boundaries within the University and unifies the entire USU community, through a common goal of sharing with those who are in need, either in our own community, or on a global scale.

USU Exceeds Established Goals for the Combined Federal Campaign. From 1997 through 2003, the University has reached its Combined Federal Campaign (CFC) goal, due to the tremendous efforts and coordination of the Office of the USU Brigade Commander. Under the leadership of the USU Chair, Vice Chair, and Campaign Managers, the total contributions reached over \$176,672. Approximately 72 percent of the USU staff, students, and faculty contributed to the Year 2003 Campaign for worthy community, national, and world charities. *The Year 2003 marks the seventh consecutive year in which the University has exceeded its goal.*

USU also earned the **2003 CFC Summit Award** for attaining 106 percent of its goal of \$167,000. In doing so, USU had a total of 66 *Eagle* donors (51 single *Eagles* with contributions representing at least one percent of the employee's salary; and, 15 double *Eagles* with contributions representing at least two percent of the employee's salary). And, for the sixth time, the USU Audio Visual Center won the award for the best designed poster for the Department of Defense, during the 2003 CFC Campaign. The winning entry was created by **Ms. Rachel Oakes**.

UNIVERSITY HONORARY DEGREES, AWARDS AND RECOGNITION

The University will promote a sense of family, community and outreach.

- Goal 5, STEWARDSHIP, USU 2003 Strategic Plan.

The University Has Granted a Total of 34 Honorary Degrees Since its Establishment. Since the first Honorary Degree that was granted in 1991, *through April of 2004*, a total of 34 recipients have been selected. The Honorary Degree recognizes individuals who have demonstrated outstanding support for the Military Health System and/or the Uniformed Services University of the Health Sciences.

Honorary Degree Recipients:

- | | |
|-------------|--|
| 1991 | Jay Sanford, M.D., Third President of the University and first Dean of the School of Medicine , recognized as a major participant in the establishment and early leadership of the University; |
| 1992 | Harry C. Holloway, M.D., Professor, USU Department of Psychiatry, and Deputy Dean from 1990 through June 1992 , recognized for unwavering support during a transitional period; |
| 1993 | The Honorable Daniel K. Inouye, United States Senator from Hawaii, Senate Appropriations Committee , recognized for continuous leadership and support for Military Medicine and the University as one of the original members of the Congress who supported the establishment of the University; |
| 1994 | Mr. Zachary Fisher, Champion of the Armed Forces , recognized for his founding of the Intrepid Museum, the Fisher House Foundation, the Fisher Armed Services Foundation, and his tremendous support for both Military Medicine and the University; |
| | The Honorable David Packard, Former Deputy Secretary of Defense, first Chairman of the USU Board of Regents, and Acting President of USU from 1976 to 1981 , recognized for his oversight during the original construction of the USU campus and his constant support for Military Medicine and the University from its establishment in 1972, until his death in 1996; |
| 1995 | The Honorable Sam Nixon, M.D., Former Chairman of the USU Board of Regents and Founder of the USU Tradition of the Mace for the University Commencement Ceremonies, recognized for his dedication to Military Medicine and the superb leadership he provided to the University; |

Frank Reynolds, M.D., Internationally recognized throughout the practice of civilian medicine and for his continuous support and interest in both Military Medicine and the University; he was also the commencement speaker during the 1995 Commencement Ceremonies;

The Honorable Strom Thurmond, United States Senator from South Carolina, Chairman, Senate Armed Services Committee, recognized for continuous leadership and support for Military Medicine and the University and as one of the original members of the Congress who supported the establishment of the University;

1996

Michael E. DeBakey, M.D., Renowned Surgeon, who has been recognized by numerous Presidents of the United States and leaders of many nations, for his knowledge of medicine and his unwavering support for Military Medicine and the University;

The Honorable Melvin R. Laird, Former Secretary of Defense and continuous supporter of Military Medicine and the University, recognized for his provision of essential guidance and support since the establishment of USU;

Francis D. Moore, M.D., Internationally recognized as a distinguished Surgeon and supporter of Military Medicine and for his consistent support to the educational programs within the University;

1997

Donald L. Custis, M.D., Vice Admiral (Retired), Former Surgeon General of the United States Navy, recognized for his career of dedicated service to Military Medicine and consistent support for the University;

The Honorable C. Everett Koop, M.D., Former Surgeon General of the United States and Member of the USU Board of Regents, recognized for his consistent support for Uniformed Medicine and the University;

The Honorable Constance Morella, Member of the United States House of Representatives from the State of Maryland, recognized for her outstanding dedication to quality health care, medical research and technology, and for her unwavering support for the University;

President Ronald W. Reagan, President of the United States from 1980 through 1988, recognized for his dedication to the welfare of the Armed Forces, Military Medicine, and the University;

1998

General Charles Krulak, Commandant, United States Marine Corps, recognized for his outstanding support for Military Medicine and for the welfare of the University; he presented the commencement address during the 1998 Commencement Ceremonies;

Joshua Lederberg, Ph.D., Nobel Laureate and Internationally Recognized as a Leader in Medicine and for his participation in, and support of, University activities and programs;

V. M. Rexroad, Brigadier General, United States Air Force, recognized as one of the original supporters of the University and for his dedication to Military Medicine and long-term dedication to the welfare of the University from its establishment, until his death, in 2002;

David C. Sabiston, Jr. M.D., Internationally Recognized throughout the Civilian Practice of Medicine for his dedication and support of Military Medicine in general and for his unwavering support for the University;

1999

Oliver H. Beahrs, M.D., Professor of Surgery, Emeritus, Mayo Medical School, Past President of the American College of Surgeons, recognized for his continuous support for Military Medicine in general and for his on-going and dedicated support for the University;

Sheila Burke, Executive Dean, Lecturer in Public Policy, John F. Kennedy School of Government, Harvard University, Former Chief of Staff, Office of the Republican Leader, United States Senate, from 1986 to 1996, recognized for her dedication to Military Medicine and the University;

The Honorable Paul S. Sarbanes, United States Senator from Maryland, recognized for his unwavering support of, and dedication to, essential legislation for both the Military Health System and the University;

2000

The Honorable William S. Cohen, Secretary of Defense, recognized for his outstanding support and dedication to Military Medicine and to the welfare of the University;

2001

The Honorable Robert J. Dole, Former United States Senator from Kansas and Senate Majority Leader, recognized for his tremendous history of service to his Nation during War and Peace and for his commitment to the health care of the Armed Forces and to the University;

Val G. Hemming, M.D., Professor and Dean Emeritus, USU School of Medicine, recognized for his dedicated and outstanding service to the Nation, which began in 1965, through his retirement, in 2002; his sincere and successful leadership resulted in tremendous acclaim for the University from the Department of Defense and the United States Congress;

The Honorable Theodore F. Stevens, United States Senator from Alaska and Chairman of the Senate Appropriations Committee, recognized for his great dedication to the Nation and the health care of the Armed Forces and the continuation of the University;

2002

Faye Glenn Abdellah, Ed.D., Sc.D., RN, FAAN, Professor and Dean Emerita, USU Graduate School of Nursing, recognized as a nurse, educator, researcher, an internationally acclaimed leader, and the Founding Dean of the newly established and accredited Graduate School of Nursing;

F. William Blaisdell, M.D., Professor of Surgery, UCD, and Chief of Surgical Services, Sacramento, VA Medical Center, recognized as a physician, researcher, and scholar, for a lifetime of service to the cause of medicine, and as a friend of military medicine and USU;

The Honorable Lonnie R. Bristow, M.D., Past President of the American Medical Association and Chairman of the USU Board of Regents, recognized as a driving force in the American Medical Association and for the initiation of a ground-breaking project in performance measures to determine the success of USU students and graduates;

Anthony R. Curreri, M.D., First President of USU, Recipient of the Department of Defense (DoD) Distinguished Public Service Award, in 1977, recognized, posthumously, for his leadership and vision, during the establishment of the University. From 1974 through 1976, he led the development and implementation of the strategies, goals and organizational structure, which ultimately ensured that USU would meet its mission to provide continuity and leadership for the Military Health System. Doctor Curreri orchestrated collaborative efforts with the military departments, medical associations, and civilian universities during the creation of USU's first academic programs;

2003

The Honorable Richard H. Carmona, M.D., M.P.H., F.A.C.S., Vice Admiral, United States Public Health Service, Assistant Secretary for Health (Acting), Health and Human Services, Surgeon General of the United States, recognized for his on-going, Nation-wide leadership in the areas of medical preparedness and Homeland Defense and for his continued support for the University faculty and students (a description follows);

John A. Mannick, M.D., Past-President of the Societies for Vascular Surgery and Surgical Chairmen, the American Surgical Association, the North American Chapter of the International Society for Cardiovascular Surgery, the New England Society for Vascular Surgery, and the USU Surgical Associates, recognized for serving over 20 years on the Visiting Board to the USU SOM Department of Surgery and for his untiring support for the University faculty, staff and students (a description follows);

Major Alfred V. Rascon, MS, USA, Medal of Honor Recipient, recognized for his courageous service as an Army medic during combat in the Republic of Vietnam where he refused treatment for his wounds, until his comrades were safe, and for serving as a role model for the graduates of the University (a description follows); and,

Martin E. Silverstein, M.D., Clinical Professor, Family and Community Medicine (International Medicine), Georgetown University School of Medicine; Member, Executive Committee, World Association for Emergency and Disaster Medicine; Senior Fellow, American College of Gastroenterology; Clinical Professor of Surgery, USU SOM, was recognized as a physician, innovator, researcher, scholar and friend of the University. For over 20 years, he provided invaluable mentorship and support to the faculty, staff and students of the University (a description follows).

Four Honorary Degrees Were Conferred During 2003.

The Honorable Richard H. Carmona, M.D., M.P.H., F.A.C.S., Vice Admiral, United States Public Health Service, Assistant Secretary for Health (Acting), Department of Health and Human Services, Surgeon General of the United States, received the Doctor of Military Medicine and Surgery, *Honoris CAUSA*, and provided the Commencement Address, during the 2003 USU Graduation Ceremonies. Doctor Carmona was sworn in as the 17th Surgeon General of the United States Public Health Service, on August 5, 2002; he assumed the role of Acting Assistant Secretary for Health, on February 5, 2003. Born and raised in New York City, Doctor Carmona dropped out of high school and enlisted in the United States Army, in 1967. While enlisted, he received his Army General Equivalency Diploma, joined the Army's Special Forces, and ultimately became a combat-decorated Vietnam veteran. After leaving active duty, Doctor Carmona attended the Bronx Community College, of the City University of New York, where he earned his Associate of Arts Degree. He later attended and graduated from the University of California, San Francisco, with a Bachelor of Science Degree (1977) and a Medical Degree (1979). At the University of California Medical School, Doctor Carmona was awarded the prestigious *gold headed cane* as the top graduate; he also earned a Master of Public Health from the University of Arizona (1998). Doctor Carmona has worked in various positions in the medical field, including paramedic, registered nurse, and physician. He completed a Surgical Residency at the University of California, San Francisco, and a National Institutes of Health-sponsored Fellowship in Trauma, Burns, and Critical Care. Doctor Carmona is a Fellow of the American College of Surgeons; and, he is also certified in correctional health care and in quality assurance. Prior to being named Surgeon General, Doctor Carmona was the Chairman of the State of Arizona Southern Regional Emergency Medical System, a Professor of Surgery, Public Health and Family and Community Medicine at the University of Arizona, and Surgeon and Deputy Sheriff for the Pima County Sheriff's Department.

John A. Mannick, M.D., Past-President of the Societies for Vascular Surgery and Surgical Chairmen, the American Surgical Association, the North American Chapter of the International Society for Cardiovascular Surgery, the New England Society for Vascular Surgery, and the USU Surgical Associates, received the Doctor of Military Medicine and Surgery, *Honoris Causa*, during the USU 2003 Commencement Ceremonies. Doctor Mannick was born in Deadwood, South Dakota, during

the heart of the depression. He attended Harvard College and the Harvard Medical School, followed by an internship in Surgery at the Massachusetts General Hospital. He served two years in the United States Air Force, before returning to residency training at the Malcolm Grow Hospital, where he developed an interest in the new field of organ transplantation. Before completing the surgical training program in 1960, he spent a year as an National Institutes of Health Research Fellow, working with E. Donnall Thomas in Cooperstown, New York (who later won the Nobel Prize in Medicine for transplantation immunology). His first faculty appointment was at the Medical College of Virginia, in Richmond. He quickly established a wealth of prolific and high impact contributions to scientific and clinical literature, authoring 19 papers in his first three years (including publications in Science, Nature, and the Journal of Clinical Investigations); and, he made the first of his 26 contributions to the Surgical Forum. By 1973, he was the Chair of Surgery at Boston University. Doctor Mannick was appointed the Moseley Professor of Surgery at the Harvard Medical School and the Surgeon-in-Chief at Brigham & Women's Hospital, in 1976. During his 18-year tenure as Chairman at Brigham, he brought his department into the forefront of American surgery by directing enormous growth, both in high quality surgical science and clinical activity, and by developing the Surgical Residency Program into one of the finest in the country. Doctor Mannick has directed a basic research laboratory with continuous NIH funding for over 40 years; and, he has authored over 340 publications. Since the 1980's, the focus of his laboratory research has been the immune consequences of injury. During the past 20 years, Doctor Mannick has served the Nation as a physician, scholar, researcher, innovator and valuable friend and mentor for the students and faculty of the USU SOM.

Major Alfred V. Rascon, MS, USA, Medal of Honor Recipient, received the Doctor of Medical Jurisprudence, *Honoris Causa*, at the USU 2003 Commencement. Major Rascon distinguished himself during combat in the Republic of Vietnam. On March 16, 1966, then Specialist Fourth Class Rascon was assigned, as a medic, to the United States Army's Reconnaissance Platoon, Headquarters Company, 1st Battalion (Airborne) 503rd Infantry, 173rd Airborne Brigade. During an attack from a numerically superior force, he braved intense fire to aid fallen comrades. He was critically wounded several times because he shielded his patient with his own body. Despite his wounds, he remained on the battlefield and continued to render aid and retrieve abandoned weapons. Only when all of his comrades were safe, did he consent to receiving care for himself. For conspicuous gallantry and intrepidity at the risk of his life above and beyond the call of duty, Major Rascon was awarded the Medal of Honor, on February 8, 2000. Major Rascon continued to serve his Nation in a variety of positions in the United States Army, the Department of Justice, the Drug Enforcement Agency, and the Immigration and Naturalization Service. In 2002, Major Rascon retired from the Civil Service as the Inspector General and then Director of the United States Selective Service. In February of 2003, Major Rascon was recalled to active duty to work in the Office of the Surgeon General of the United States Army. Major Rascon's continued commitment to the Nation and his longevity of service, coupled with his extraordinary achievements as a medic in Vietnam, make him an outstanding role model for all military medical personnel. His life and his heroic actions provide an outstanding example for the students of USU.

Martin E. Silverstein, M.D., Clinical Professor, Family and Community Medicine (International Medicine), Georgetown University School of Medicine; Member, Executive Committee, World Association for Emergency and Disaster Medicine; Senior Fellow, American College of Gastroenterology; Clinical Professor of Surgery, USU SOM, received the Doctor of Military Medicine and Surgery, *Honoris Causa*, during the Annual USU Surgical Associates Day, held in August of 2003. Doctor Silverstein, a physician, innovator, researcher, scholar, and friend of the University, has spent a lifetime in service to the cause of medicine and the plight of those in need of care. Doctor Silverstein's major fields of interest are in Shock Trauma and International Disaster and Emergency Management. In addition to his current positions listed above, Doctor Silverstein's vast experience has proven to be a virtual *gold mine* for those with whom he consults. A selected few of his previous appointments include: Senior Fellow in Science and Technology, Center for Strategic and International Studies, Georgetown University; Research Professor of Surgery (Surgical Biology), University of Arizona College of Medicine; and, Director of Quality Assurance, University Hospital, University of Arizona College of Medicine. Today, Doctor Silverstein is conducting research in eight areas, of which, six are listed: Prediction and Management of Disaster by Technological Means; Use of Communication Networks in Distribution and Management of Injured Patients in Mass Casualty Situations; Strategic and Tactical Approaches to the War-Injured and the Disaster-Injured in Mass Casualty Situations; Medical Science and Health as an Instrument for Foreign Policy; Low-Intensity Warfare: A New Environment for Medical Care; and, Use of LASERS and MASERS in the Non-Invasive Treatment of InterOrgan Disease. His expanded publications justify that he has met his lifetime goal: *to provide a body of knowledge that will be useful for future scholars and disaster managers and serve as a basis for action*. Doctor Silverstein's on-going accomplishments serve as a model for the qualities USU seeks to instill in its alumni, as they serve in the Military Health System as physicians, advanced practice nurses, or scientists. Doctor Silverstein has served on the faculty of the USU SOM Department of Surgery for over 20 years; and, during that time, he has provided invaluable consultation and expertise to the surgical academic activities at the University.

The University Medal.

Background. The University Medal is one of the University's highest honors. It was created in 1999, to pay tribute to deserving alumni, staff, and faculty members, friends and supporters of the University, its schools, programs, and mission. The recipients are recognized for professional or academic success or public service. Receipt of the University Medal is by endorsement and recommendation of the USU Committee for Names and Honors, submitted through the USU President, with the approval of the USU Board of Regents.

The University Medal, molded from silver, displays the University Seal on the front side; the medal's number, recipient's name, and the award date are engraved on the reverse side. The year 2003 marked the fourth annual presentations of the University Medal. As of April 2004, a total of 19 individuals have received the University Medal.

University Medal Recipients:

1999 **Lieutenant General Ronald Blanck, Surgeon General of the Army**, received the first University Medal at the November 1, 1999 Meeting of the Board of Regents. As Surgeon General, he served as a member and Chair of the USU Executive Committee; he was also the Assistant Dean of Student Affairs at USU from 1976 through 1979;

2000 **David O. Cooke, Director of Administration and Management, Office of the Secretary of Defense**, was awarded the University Medal during the USU Commencement Ceremonies on May 20, 2000, in recognition of his long-term service in the Office of the Secretary of Defense (OSD). From 1957 until his death in 2002, Mr. Cooke provided continuous support and administrative guidance for Military Medicine and the University;

Rear Admiral Michael L. Cowan, MC, USN, Chief of Staff for the Assistant Secretary of Defense for Health Affairs (and later Surgeon General of the Navy), received the University Medal in recognition of thirty years of dedicated service in support of Military Medicine and the University. Admiral Cowan received the University Medal during the USU Commencement Ceremonies on May 20, 2000, following his presentation of the Commencement Address;

Jeffrey R. Swope, Director, USU Audio Visual Center, upon his retirement from public service, was recognized for his leadership in the establishment of the University Audio Visual Center, during 1977, and for his 23 years of continuous dedication and unwavering support to the USU community. The University Medal was presented on May 20, 2000, during the USU Commencement Ceremonies;

2001 **Lieutenant Colonel Yvonne Andejaski, MC, USA, USU SOM Class of 1983**, completed a residency in radiation oncology; she was board-certified, in 1987, and was active in patient care and research. She served as the Acting Chief of Radiation Oncology at the National Naval Medical Center and as the Chief of Radiation Oncology at the Walter Reed Army Medical Center, as well as the Radiation Oncology Consultant to the Surgeon General of the Army. In addition to serving as the Program Manager for a congressionally-directed \$240 million breast cancer research program, in 1998, she co-designed and co-managed the development of the DoD Breast Cancer Treatment Guidelines using a TriService, multi-specialty panel of oncologic, surgical, and primary care and psycho-social clinicians. Following her own diagnosis of breast cancer in 1994, she selflessly continued her work through the Spring of 2001, when she retired from the Army and assumed a position at the National Cancer Institute. On March 31, 2001, during a retirement party in Doctor Andejaski's honor, Doctor Lee Poth presented the University Medal, on behalf of the University, in recognition of LTC Andejaski's significant contributions to research, medicine, the military, and the University. Doctor Andejaski died in October of 2001;

Gerald W. Fischer, M.D., Colonel, MC, USA (Retired), received his commission in the United States Army in 1971, and began his pediatric training at the Madigan Army Medical Center, followed by an Infectious Disease Fellowship at the Tripler Army Medical Center. After arriving at USU in 1977, he earned the faculty rank of professor, within four years. During his twenty-year tenure in the USU Department of Pediatrics, he held numerous positions of importance. He is a superb clinician who has trained numerous military physicians as fellows in his specialty. His scientific career has been quite successful, earning both national and international recognition; he has also founded his own biotechnology company, Biosynexus. The University Medal was presented on May 19, 2001, during the 2001 Commencement Ceremonies;

Connie Mariano, Rear Admiral, MC, USN, USU SOM Class of 1981, the first USU SOM Graduate to be promoted to O-7, was the Commencement Speaker during the 2001 USU Graduation Ceremonies. During June of 1992, RADM Mariano became the first military woman to be named White House Physician; in February of 1994, she was promoted to Director of the White House Medical Unit and Senior White House Physician. **Doctor Mariano was promoted to Rear Admiral (lower half) on July 1, 2000, making her the first Filipino American to become an admiral in the history of the United States Navy.** The University Medal was awarded following RADM Mariano's presentation of the USU Commencement Address on May 19, 2001;

Michael N. Sheridan, Ph.D., USU SOM Associate Dean for Graduate Education, was recognized for his tremendous service to the University since 1980. Following his planned retirement during 2002, the University's presentation of this award reflected the tremendous respect and gratitude held by all for Dr. Sheridan's dedicated service and accomplishments during his more than twenty years of outstanding service to the University. The University Medal was presented during the USU Commencement Ceremonies on May 19, 2001;

Craig Llewellyn, M.D., Professor and Chair, Department of Military and Emergency Medicine, received the University Medal on August 23, 2001, during the welcoming ceremonies for the new students. The award recognized the superb dedication of Doctor Llewellyn who served as the Department Chair of Military and Emergency Medicine for 14 years (1987 through 2001). Doctor Llewellyn first joined USU in 1982, when he was selected to serve as the Commandant of Students from 1982 through 1987. Doctor Llewellyn has served as a foundation for the University in its continuous efforts to effectively respond to the special needs of military medicine. He remains at USU as a tenured professor and also as the Director of the Center for Disaster and Humanitarian Assistance Medicine (CDHAM);

Norman M. Rich, M.D., Professor and Chair, Department of Surgery, was awarded the University Medal on August 23, 2001, during the 16th Annual Surgery for Trauma Day. Since the very inception of the University, Doctor Rich

has continuously provided support and encouragement to the faculty, students, and graduates of the School of Medicine. On both the national and international scenes, Doctor Rich has contributed to a positive awareness of the University through his international efforts and memberships in elite organizations. He has been responsible for on-going visits by prestigious organizations to USU. Two examples of such visits include the Society of University Surgeons (this premier organization for young academic surgeons has held two meetings at USU, whereas the majority of United States medical schools have never been visited) and, the International Surgical Group composed of Professors from leading Canadian, British, Scandinavian, and United States Schools of Medicine;

2002

Val G. Hemming, M.D., Professor and Dean Emeritus, USU School of Medicine, was awarded the University Medal on April 25, 2002, by the University President during Dean Hemming's retirement ceremony. Dean Hemming first came to USU in 1980 and served in the Department of Pediatrics where he was appointed as the Department Chair, in 1987. In 1995, he served as the Interim Dean until his appointment as Dean, in May of 1996. Under his leadership, the curriculum of the SOM was thoroughly reviewed and enhanced to better meet the special needs of the Uniformed Services. In all matters, Dean Hemming efficiently kept the welfare of the students, faculty and staff of the SOM as a driving force during his successful leadership;

Scott R. Lillibridge, M.D., CAPT, USPHS, USU Class of 1981, Leader of the Health and Human Services Coordinated Bioterrorism Initiative in July 2001, was awarded the University Medal on May 18, 2002, at the USU Commencement Ceremonies. CAPT Lillibridge was also the Guest Speaker at the 2002 USU Commencement. At the time of the graduation ceremony, CAPT Lillibridge served as the Special Assistant for Bioterrorism for the Secretary of Health and Human Services (HHS) and directed anti-terrorism efforts across HHS. CAPT Lillibridge also served as the Director of the Bioterrorism Preparedness and Response Program for the Centers for Disease Control and Prevention from 1998 through 2001. He joined the CDC in 1990, and in 1995, he led the United States Medical Delegation to Japan after the sarin gas attack in the Tokyo subway. Also during that year, Dr. Lillibridge was the lead physician for the United States Public Health Service response following the Oklahoma City bombing. He has worked in 14 nations on epidemiology and other public health issues; has had three books in press; and, authored or co-authored 25 publications on bioterrorism and various other public health issues;

Chester J. Pletzke, A.M.L.S., Former Director of the USU Learning Resource Center, received the University Medal at the USU Commencement Ceremonies on May 18, 2002. Mr. Pletzke provided exceptional service to USU for 24 years as the Director of the USU Learning Resource Center (LRC). His visionary planning, advocacy, entrepreneurship, marketing skills, and great creativity resulted in the LRC becoming one of the outstanding medical university libraries and information centers in the United States. He forged partnerships with the

National Library of Medicine, medical publishers, other medical libraries, information technology providers, and various government libraries to ensure that the LRC retained its national leadership. Every accrediting entity since the establishment of the LRC has recognized his superb leadership and the extraordinary support provided by the LRC to the students, faculty and staff at USU;

Dale C. Smith, Ph.D., Professor and Chairman, Department of Medical History, received the University Medal at the USU Commencement Ceremonies on May 18, 2002. Doctor Smith has already provided over twenty years of exemplary service to the University as a superlative teacher; mentor and critic; scholar of the history of medicine, military medicine and science; and, as a department administrator. His contributions in redefining scholarship and revising the University's essential policies for faculty appointment, promotion, and tenure have been critical. He has assisted with the development of new graduate programs in medical history, military applied physiology, and laboratory and animal medicine. In his capacity as an invited lecturer on medical and military history throughout the Nation and in many parts of the World, he has enhanced the recognition of USU, its mission, and the proud heritage of military medicine in the United States;

Faye Glenn Abdellah, Ed.D., Sc.D., RN, FAAN, Professor and Dean Emerita, USU Graduate School of Nursing, received the University Medal on May 30, 2002, from the University President, during her retirement ceremony. Upon her arrival at USU, in 1993, Doctor Abdellah was faced with urgent requirements to establish curricula, select a faculty, and gain approval from accrediting entities for the establishment of the USU Graduate School of Nursing (GSN). She accomplished all requirements with extraordinary success. As of April 2003, 183 advanced practice nurse graduates of the GSN had received graduate degrees in their specialties and were serving the Nation in the Uniformed Services. The Nursing Chiefs of the Armed Forces extolled the success of the GSN during 2001-2002, when they met with the two accrediting organizations. Under the leadership of Dean Abdellah, the GSN met its mission and succeeded far beyond the established goals of the United States Congress and the Military Health System;

2003

John Sarvey, Ph.D., USU SOM Professor of Pharmacology and Neuroscience, was awarded the University Medal on May 28, 2003. Doctor Sarvey was born in North Tonawanda, New York, and received his undergraduate training at Williams College, Massachusetts, majoring in chemistry. He then joined the Army Special Forces as a medic, where he rose to the rank of Sergeant First Class, serving for one year on active duty and a further six years in the National Guard. While in the National Guard, he completed a Ph.D. Degree in Pharmacology at the State University of New York at Buffalo. Doctor Sarvey joined the USU SOM Department of Pharmacology in 1979; at the time of his death on August 20, 2003, Doctor Sarvey's research had attracted national and

international attention. He used electro-physiological techniques to elucidate mechanisms underlying the phenomenon of long-term potentiation (LTP) in hippocampus and other brain regions. His laboratory was the first to show that LTP was prevented by inhibitors of protein synthesis and to identify roles for specific neurotransmitters. In all of his studies, Doctor Sarvey was aided by the work of numerous gifted graduate education students and post-doctoral fellows who joined the Sarvey laboratory due to his extraordinary enthusiasm for his research projects, his ability to transmit that enthusiasm to others, and his skill in making the laborious work of obtaining reliable electrophysiological recordings seem like great fun. It is greatly to his credit that many of his students and trainees have gone on to develop distinguished research careers. He was also an excellent teacher of medical students, receiving on-going student recognition for his outstanding teaching skills. Typical of his dedication to the SOM, after his condition was diagnosed, he continued as the Course Director for the Medical Pharmacology Course. Doctor Sarvey's dedication, enthusiastic teaching and scientific contributions will be long remembered. He is greatly missed by his USU family;

John W. Lowe, Colonel, Medical Service Corps, United States Army (Retired), President and Chief Executive Officer of the Henry M. Jackson Foundation for the Advancement of Military Medicine, received the University Medal on May 9, 2003. Mr. Lowe joined the Henry M. Jackson Foundation (HJF) in 1988, after serving more than 30 years in the Medical Service Corps of the United States Army. His last active duty assignment was devoted to supervising the Directing Headquarters of the United States Army Europe, 7th Medical Command, which provided health care for over 500,000 United States military health beneficiaries throughout Europe. For nearly ten years, Mr. Lowe has served as the HJF Program Director for a multi-year, multi-million dollar HIV research program conducted by the Department of Defense and the Foundation. And, Mr. Lowe has served as the President and CEO of the Henry M Jackson Foundation, since 1990. During the past 14 years, Mr. Lowe has ensured that the HJF continues to provide extensive scientific and project management services, of the highest quality, in support of military medical research and education at USU. Mr. Lowe has been instrumental in ensuring that the partnership between the Foundation and USU has grown and flourished; for example, during 2003, the HJF sponsored 43 research bridge grants and, during the past few years, the HJF has awarded Research Fellowships to 11 outstanding graduate students at USU;

Leslie Sobin, M.D., Off-Campus Faculty Member and Lecturer, USU SOM Department of Pathology, received the University Medal on May 22, 2003, on the basis of her prolonged contributions to the teaching programs of the USU SOM Department of Pathology. Doctor Sobin has lectured the USU SOM second-year medical students extensively on her subspecialty in Pathology, thus greatly enriching the curriculum for the SOM students. She is a world-recognized leader in Pathology and has delivered all of the USU SOM lectures

on Gastrointestinal Pathology, since 1981. She is a superb lecturer and was nominated for the University Medal for her outstanding contributions, for over 23 years, to the USU SOM Department of Pathology; and,

Diane Solomon, M.D., Off-Campus Faculty Member and Lecturer, USU SOM Department of Pathology, received the University Medal on May 9, 2003, on the basis of her prolonged contributions to the teaching programs of the USU SOM Department of Pathology. Doctor Solomon has lectured the USU SOM second-year medical students extensively on her subspecialty in Pathology, thus greatly enriching the curriculum for the SOM students. She is a world-recognized leader in Pathology and has delivered all of the USU SOM lectures on Breast and Cervical Pathology, since 1986. She is a superb lecturer and was nominated for the University Medal for 18 years of outstanding contributions to the USU SOM Department of Pathology.

The Carol J. Johns Medal.

Background. **Carol J. Johns, M.D., Professor, John Hopkins School of Medicine**, was a long-time enthusiastic and effective supporter of the University. Doctor Johns worked for the health and survival of the University in numerous ways. She served as a member of the USU Board of Regents from 1985, until her death, in 2000. A warm and gifted woman with remarkable personal humility and gentleness, Doctor Johns achieved the highest honors in academic medicine as a nationally recognized clinician, academician, and teacher. The University established an annual award in her name, the ***Carol J. Johns Medal***. The Medal will honor the faculty member whose accomplishments emulate Doctor Johns' spirit in: furthering the welfare and excellence of the USU faculty; promoting outstanding educational programs for the students; and, advancing the reputation of the University locally, nationally, and internationally. The Carol J. Johns Medal was presented for the first time during the 2001 USU Commencement Ceremonies. Two individuals were chosen to receive the award during the 2002 USU Commencement Ceremonies; and, one individual received the award during the 2003 USU Commencement Ceremonies. As of April 2004, a total of four individuals have received this prestigious award.

Recipients of the Carol J. Johns Medal:

2001	Louis Pangaro, M.D., Colonel, MC, USA (Retired), Professor, USU SOM Department of Medicine , was the first individual to receive the newly established Carol J. Johns Medal, during the 2001 USU Commencement Ceremonies, on May 19, 2001. Doctor Pangaro was selected due to his internationally recognized leadership in academic medicine and his commitment to the promotion of
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outstanding educational programs, which are acknowledged by his on-going selection to university and national initiatives dealing with curriculum reform;

2002

Rosemary C. Borke, Ph.D., Professor, USU SOM Department of Anatomy, Physiology and Genetics, was nominated by the USU Faculty Senate for the 2002 Carol J. Johns Medal. Doctor Borke is recognized as: an outstanding educator of medical and graduate students; an innovative leader in the development and implementation of curricula; a model for faculty leadership at the Department and University level; and, an internationally recognized expert in the area of peripheral nerve injury and repair. Her involvement in, and contributions to, all aspects of USU faculty service have established a level of unsurpassed excellence that stands as a model for all USU faculty. She has demonstrated excellence in promoting outstanding educational programs, furthering the welfare and excellence of the USU faculty, and advancing the reputation of the University locally, nationally, and internationally;

Val G. Hemming, M.D., Colonel, USAF, MC (Retired), Professor and Dean Emeritus, School of Medicine, was chosen to receive the Carol J. Johns Medal, during the 2002 USU Commencement Ceremonies, on May 18, 2002. Nominated by the USU Faculty Senate, Dean Hemming was recognized for his endeavors in research for over 20 years. His research led to an innovative treatment that prevents death and disability from Respiratory Syncytial Virus infection in vulnerable pre-term infants. During his term of service as the Dean of the School of Medicine, he continued his on-going efforts to improve and reform the curriculum of the medical school. As with the rest of the Nation, the USU SOM faced a marked reduction in the number of patients available to students during their clinical rotations. To address this concern, Dean Hemming was instrumental in the development and implementation of the USU National Capital Area Medical Simulation Center (SIMCEN), which allows the effective and efficient use of simulated patients. In addition, the SIMCEN facilitates the implementation of the latest technological and educational advances for the teaching of physicians and students. His success in this effort will guarantee the value of USU as a resource for the effective training and testing of medical students and for the continuing medical education of health care providers for generations to come; and,

2003

Norman M. Rich, M.D., F.A.C.S., Professor and Chair, USU SOM Department of Surgery, was awarded the Carol J. Johns Medal, during the 2003 USU Commencement Ceremonies, on May 17, 2003. Since the inception of the University, Doctor Rich has continuously provided support and encouragement to the faculty, students, and graduates of the School of Medicine. Following a distinguished Army career, his military awards include: the Legion of Merit, Bronze Star, Meritorious Service Award, and Vietnam Medals. As the first Chair of the USU SOM Department of Surgery, Doctor Rich has contributed to the

international awareness of the University through his multiple memberships in elite societies and associations and the organization of on-going visits by prestigious organizations to USU. Doctor Rich was named the USU SOM Outstanding Civilian Educator, in 1983; he received the USU Exceptional and Outstanding Service Medals, in 1989 and 2001; and, he was awarded the University Medal, during 2001. In 1999, he received *The J.E. Wallace Sterling Lifetime Alumni Achievement Award* from the Stanford Medical Alumni Association; and, on October 11, 2002, the USU President announced the establishment of *The Norman M. Rich Department of Surgery*. Doctor Rich has earned international recognition for his work, lecturing in more than 35 countries; he has published over 300 manuscripts and has been the author or co-author of five books. He has held multiple leadership positions in a variety of surgical societies; he is also a member of numerous international surgical societies; and, he has received Honorary Medical Degrees and Professorships from universities in more than five countries. After 28 years at USU, Doctor Rich has succeeded in establishing an outstanding educational program for the USU SOM students; in addition, under his leadership, surgical skills laboratories, simulation training, and virtual trainers have been incorporated to provide surgical training that is recognized both nationally and internationally.

The Year 2003 Curreri Award.

Background. Following his retirement as the first University President in November of 1976, **Anthony R. Curreri, M.D.**, was awarded the Department of Defense (DoD) Distinguished Public Service Award. The DoD award, presented in 1977, cited Dr. Curreri for “collaborating with the military departments and for the development of the overall objectives and goals of the University to develop and implement an educational system of the highest quality to serve the physician manpower needs of the military services.” The 1996 Graduating Class of the School of Medicine established the Curreri Award to recognize exceptional contributions to the continuation and well being of the University and to memorialize the leadership of Dr. Curreri as USU’s first President. Since the initial award in 1996, all of the graduating classes (SOM, GSN, and Graduate Education) have participated in selecting the recipients of this award. Doctor Curreri was awarded an Honorary Degree, posthumously, on January 10, 2002, by the USU community.

Recipients of the Curreri Award:

1996	Vorley M. (Mike) Rexroad, BG, U.S. Air Force (Retired);
1997	John Dressendorfer;

1998	Lorraine B. Sanford;
1999	Charles C. Partridge, COL, USA (Retired);
2000	Enrique Mendez, Jr., M.D.;
2001	Frederic G. Sanford, M.D., RADM, MC, USN (Retired);
2002	Barry W. Wolcott, M.D., COL, MC, USA (Retired); and,
2003	The Honorable Robert E. Anderson, M.D.

The Honorable Robert E. Anderson, M.D., Former Member of the USU Board of Regents, Receives the 2003 Curreri Award. On May 17, 2003, the USU graduating classes awarded the 2003 Curreri Award to **The Honorable Robert E. Anderson, M.D.** The award recognized Doctor Anderson for his on-going and extraordinary support of USU. Doctor Anderson is a retired Professor, Department of Laboratory Medicine and Pathology, University of Minnesota Medical School, Minneapolis. Prior to his position as Professor, he was the Vice President, Health Sciences, at the University of Minnesota. Doctor Anderson held various positions at the University of New Mexico, Albuquerque, from 1964 to 1991, including Chairman, Department of Pathology, School of Medicine. During his distinguished career, Doctor Anderson has received several awards, including his selection as a *Markle Scholar in Academic Medicine* and as an *Honorary Fellow, College of American Pathologists*. Throughout his career, Doctor Anderson has held numerous research appointments as Principal Investigator and Co-Principal Investigator, primarily in the area of radiation injury. He has also held a variety of positions with the Department of Veterans Affairs, both in Washington, D.C., and at field locations. In addition to his management experience as Vice President, Health Sciences, University of Minnesota, he has served as the Chairman of the Budget and Finance and Public Affairs and Grant Relations Committees, and as the President of the Association of Pathology Chairmen. Further, he has had wide experience in curriculum development, graduate education, graduate medical education, research policy, faculty promotions, and strategic planning. Appointed as a Member of the USU Board of Regents by the President of the United States, with Congressional approval, in 1996, and serving through August of 2002, Doctor Anderson provided invaluable leadership to the University due to his vast experience and skills in strategic planning and program development.

The Packard Lecture.

Background. The Packard Lecture Series was named in honor of **The Honorable David Packard** (September 7, 1912 - March 26, 1996), distinguished friend and supporter of the University. Mr. Packard was the Deputy Secretary of Defense, when USU was created in 1972. He served as the first Chairman of the USU Board of Regents; and, he was the Acting President of the University, from 1976 to 1981. Mr. Packard also served as the first Chair of the Council of Directors of the Henry M. Jackson Foundation

for the Advancement of Military Medicine, for over six years. The USU Faculty Senate established the Packard Lecture, in 1985, to annually honor individuals who have made significant contributions to the military medical community; it is considered among the greatest honors bestowed by the USU faculty.

The David Packard Lecture Series:

1985 Enrique Mendez, M.D.	<i>Teaching Humanism to Medical Students</i>
1986 Joshua Lederberg, Ph.D.	<i>The Complexity of Biological Systems</i>
1987 C. Everett Koop, M.D.	<i>The Fight Against AIDS</i>
1988 Robert Petersdorf, M.D.	<i>Some Issues in Graduate Medical Education</i>
1989 ADM James Watkins, USN	<i>AIDS, The Political, Ethical and Social Aspects</i>
1990 Arnold Relman, M.D.	<i>Scientific Misconduct</i>
1991 VADM James A. Zimble, MC, USN	<i>Navy Medicine Goes to War, A Time For Evaluation, Reflection and Discussion</i>
1993 Philip R. Lee, M.D.	<i>Re-Inventing Public Health</i>
1995 David A. Kessler, M.D.	<i>Accelerating Approval for Drugs for Serious and Life Threatening Diseases</i>
1996 Joseph A. Califano, Jr.	<i>Radical Surgery: What's Next for America's Health Care</i>
1997 Michael DeBakey, M.D.	<i>History, the Torch that Illuminates Lesson from Military Medicine</i>
1998 Francis D. Moore, M.D.	<i>New Kinds of War: New Kinds of Peace</i>
1999 Senator Nancy Kassenbaum Baker	<i>The Federal Advisory Committee on Gender Integration Training and Related Issues</i>
2000 David P. Stevens, M.D.	<i>The Future of Medical Education: Bytes, Ticks and Finding Your Way</i>
2001 Wayne T. Hockmeyer, Ph.D.	<i>Perspectives in Biotechnology</i>

2002 Kenneth M. Ludmerer, M.D.

***The Coming of the Second Revolution in
Medical Education***

The 2002 David Packard Lecture Featured Kenneth M. Ludmerer, M.D., Professor of Medicine and History, Washington University, St. Louis. The President of the USU Faculty Senate, **Linda L. Porter, Ph.D., Professor, USU SOM Department of Anatomy, Physiology and Genetics**, reported to the USU Board of Regents, on August 25, 2002, that one of the significant highlights of the Faculty Senate, during 2002, was its sponsorship of the 2002 Packard Lecture which featured **Kenneth M. Ludmerer, M.D., Professor of Medicine and History, Washington University, St. Louis.** On May 9, 2002, 220 members of the USU faculty and staff attended the David Packard Lecture in the Sanford Auditorium. Doctor Ludmerer, an eminent internist, medical educator, and historian of medicine, delivered a lecture entitled *The Coming of the Second Revolution in Medical Education*. The lecture presented an overview of his recently released book, Time to Heal, which examines the evolution of American medical education from the turn of the Century to the present era of managed care. The 2002 Packard Lecture was well received and considered to be most relevant by the USU community.

Doctor Ludmerer is best known for his work in medical education and the history of medicine. His first book, Genetics and American Society (1972), a study of the American Eugenics Movement, was placed by *Saturday Review* on its list of the year's outstanding science books. His second book, Learning to Heal (1985), on the creation of America's system of medical education, was nominated for a Pulitzer Prize and Bancroft Prize. His recently released, Time to Heal (1999), has been called by reviewers *a masterpiece of great national importance* and *the most important work in medical education since the Flexnor Report*. This book was nominated for a Pulitzer Prize and Bancroft Prize and is the first book by a living author to be selected for inclusion in The Classics of Medicine Library.

Doctor Ludmerer is a member of Phi Beta Kappa, Alpha Omega Alpha, the Association of American Physicians, the American Clinical and Climatological Association, and the American Academy of Arts and Sciences. He is a Fellow of the American Association for the Advancement of Science and the American College of Physicians. He is also President of the American Association for the History of Medicine and a member of the National Council of Harvard Medical School. He has served on the editorial boards of eight professional journals and has delivered named lectures at over 100 educational institutions or professional societies. In 1997, he received the Nicholas E. Davies Award of the American College of Physicians for Outstanding Contributions to the Medical Humanities; in 2000, the Distinguished Alumnus Award of the Johns Hopkins University; and, in 2001, the Inaugural Daniel C. Tosteson Award for Leadership in Medical Education from Harvard Medical School's Carl J. Shapiro Institute.

(The next scheduled Packard Lecture will take place during 2004.)

TEACHING AND RESEARCH SUPPORT

Background. The nine activities organized under the Office of the USU Vice President for Teaching and Research Support (TRS) were originally established as part of the School of Medicine (SOM). As the University's activities and programs expanded to include the Graduate School of Nursing, Continuing Education for Health Professionals, and the Armed Forces Radiobiology Research Institute, it became apparent that the central support functions of TRS were no longer limited to the SOM. As a result, the TRS activities were moved from responsibilities designated to an Associate Dean in the SOM, to a University Vice President. As this evolution occurred, it was also determined that these activities should be called Centers to more accurately reflect their missions as central resources for USU. The nine TRS Centers, during 2003, included: the Audio Visual Support Center; the Center for Multidisciplinary Services; the Learning Resource Center; the Center for Informatics in Medicine; the Center for Laboratory Animal Medicine; the Center for Environmental Health and Occupational Safety; the Biomedical Instrumentation Center; the Information Services Management Center; and, the Pharmaceutical Supply Center.

The Audio Visual Support Center.

Visual communications media can demonstrate cause and effect relationships to convey complex concepts, furnish flawless demonstrations, and interactively involve students to learn in less time and more effectively than through or by traditional approaches.

- Herman Lewis, Educational Films: Writing, Directing, and Producing For Classroom, Television, and Industry, Crown Publishing Incorporated, New York, New York, 1965.

The USU Audio Visual Center (AVC) functions as an essential teaching and research support resource for the USU faculty and staff; it provides support for education and research in the form of computer graphics, still photography, video, multimedia products, and consultation services. ***The Medical Photography Branch*** provides professional photographic services to include: patient photography in a clinical setting; gross specimen photography for Pathology and Anatomy studies; documentation of research projects; and, coverage of University events for public affairs programs. Photographic laboratory services include: custom printing; film processing support; digital image enhancement; traditional slide duplication; flat art copy; small object studio subjects; and, portraiture services. ***The Computer Graphics Branch*** provides graphic art services for charts, graphs, and text of medical/scientific information in journal publication, poster session displays, and 35 mm slides for classroom presentations. Detailed original medical illustrations in full color, or line drawings, are prepared to supplement teaching programs, accompany articles for publication, or illustrate research displayed in poster sessions. A variety of products are designed for Internet and electronic delivery in support of medical education and

training programs. Signs, forms, brochures, logos, books, covers, folders, and flyers are also produced in support of academic and administrative functions. **The Medical Television Branch** provides studio and remote video tape recording and broadcast services. Extensive editing, titling, and duplication are provided in support of laboratory demonstrations, field exercise documentation, and classroom lectures. Multimedia (CD-ROM/DVD) production and web page design services are also available to enhance course materials and for the distribution of University information. **Facility Renovation.** During the Summer of 2003, the Heating, Ventilation, and Air Conditioning (HVAC) Systems were renovated in the AVC office areas. Upon the conclusion of the HVAC renovation project, the AVC was resourced to fully install soundproofing in its Television Studio and efficiently relocate equipment.

Support for CFC and other USU Activities. For the sixth time, the USU AVC won the award for the Best Designed Poster for the Department of Defense, during the 2003 CFC Campaign; **Ms. Rachel Oakes** created the winning entry. **Support for CD-ROM Production.** For the second time, in collaboration with the USU Vice President for Administration and Management, AVC developed a CD-ROM version of the *2002 Edition of the USU Journal*; designed in-house, and replicated through the use of a DoD contract. The electronic format of the USU Journal provides direct and searchable access to the wealth of information provided in the annual edition of the USU Journal. Copies of the *2002 Edition of the USU Journal*, in CD-ROM format, were provided to the 331 members of the USU faculty, the USU Board of Regents, the Surgeons General of the Uniformed Services and their immediate staffs, the Commanders of Military Treatment Facilities throughout the Defense Health Program, the Congress of the United States, and many others; it was also placed on the USU Web Site. **Production of a Student Manual.** AVC also provided design and production support for a training and reference manual for USU students to facilitate their education in military medicine. The manual is specifically tailored for field use by the military medical community; it is produced on waterproof paper and sized to fit into a student's pocket. **Medical Simulation and Responding to Bioterrorism.** Throughout 2003, the AVC provided on-going support to the National Capital Area Medical Simulation Center (SIMCEN), specifically during the conceptual planning and design of a Computer-Aided Virtual Environment (CAVE). The CAVE is designed as an immersive, virtual reality environment suitable for simulating mass casualty, triage and/or biological-chemical training scenarios. Students would be physically immersed in a virtual environment with patients, which could be either virtual, live, or high fidelity computer-driven patient simulators. Another project has included the provision of support to the USU SOM Department of Psychiatry in developing materials to help teenagers cope with the traumatic stress caused by threats of bioterrorism.

Archiving of Historical Images for USU and the Joint Combat Camera Center. The Office of Teaching and Research Support, in conjunction with several USU activities, continued the on-going development of a digital archive of historical images for the University. The annotated database of USU's historical images began with significant images related to the University's Board of Regents. By the end of 2003, thousands of images have been viewed, evaluated, edited, digitized, captioned, catalogued by subject matter, and archived. The current effort is focused on images from twenty-five years of USU commencement exercises. **Collaboration with the Joint Combat Camera Center.** Through cooperation with the Joint Combat Camera Center, the AVC has begun the collection of medically-related photos taken during the deployment of United States Forces to Iraq. These photos provide insight into the medical mission of the coalition troops stationed, in Iraq.

Center for Multidisciplinary Services.

The existing general facilities for teaching are excellent. Teaching and research support activities are providing a high quality of service to both academic departments and administrative/support activities.

- *Institutional Resources*, Chapter III, USU Self-Study Report to the Commission on Higher Education of the Middle States Association of Colleges and Schools, prepared for the 2003 Site Visit, page III-12.

On-Going Renovation, Upgrades, and Support for the USU Teaching Mission. By 1996, the USU Center for Multidisciplinary Services (MDL), the USU Faculty Senate, the Offices of the Deans of the SOM and GSN, and the USU President were aware that the teaching tools available in the lecture halls and auditorium required major renovation. Based on surveys of students, faculty, and staff, an engineering design was commissioned to upgrade the equipment; the project was then expanded to include the replacement of both carpeting and seating. The Office of the Vice President for Teaching and Research Support and MDL successfully coordinated a major renovation of the teaching tools in the Sanford Auditorium and the USU lecture halls, during 1998 and 1999. Since then, and throughout 2003, subsequent upgrades of the teaching facilities have been on-going, to include a major purchase of tables and chairs for the teaching classrooms, in September of 2001; and, the obligation of funding for the renovation of Lecture Rooms A and B, during 2003. All of these activities are in compliance with Goal 5, STEWARDSHIP, of the USU Strategic Plan. By upgrading the lecture halls, classrooms, and the auditorium, USU has enhanced its ability to: provide a quality educational environment for its students, faculty, and staff; conduct continuing medical education; and, sponsor military medical conferences for the MHS in a manner that will enhance the reputation of USU as a premier health sciences academic institution.

Renovation of USU Lecture Halls. All of the USU lecture halls have been designed with the same equipment and controls so that instructors and students can learn one system and move from one lecture room to the next without having to adjust to unfamiliar teaching tools. The upgraded equipment provides the faculty with a broader range of teaching tools to present their material. On-going upgrades include: 1) the installation of upgraded audio and projection equipment; 2) the provision of computer capability and Internet access; 3) enhanced video capabilities in each room, to include in-house cameras for overflow viewing throughout the campus; and, 4) *smart* classroom capabilities in Lecture Room C, to include video-teleconferencing and a state-of-the-art audience response system. A majority of these upgrades took place during the summer of 1998; and, equipment installation occurred around class schedules, throughout 1998 and 1999. Similar upgrades are also being planned for the Board of Regents Conference Room, selected conference rooms throughout the campus, and the Multidisciplinary Laboratories. In September of 2000, resources were identified to obtain computer and video projector equipment to upgrade the major USU conference rooms with systems similar to those available in the lecture halls; this upgrading process continued, throughout 2001.

By 2003, the MDL had completed the installation of new video projectors in all of the USU lecture rooms. This was in keeping with the original upgrade plan for the redesign of the USU lecture hall control systems, as described above. The control systems, installed during 1998-1999, allowed the lecturers to control various aspects of the audiovisual support as well as to facilitate future upgrades of the equipment within the lecture halls without having to change an entire system. The on-going process of upgrading the video projectors has proven to be a simple process due to MDL's careful planning for future requirements.

Renovation of the Anatomical Teaching Laboratory. In 1998, it was identified that the working and storage areas and the freezers in support of the Anatomical Teaching Laboratory (ATL) required significant renovation. Following coordination with the Vice Presidents for Administration and Management, Resource Management, and Teaching and Research Support, funding was identified, in September of 2001, for the renovation of the working and storage areas and the replacement of the ATL freezers. Following extensive consultation and planning by the USU Facilities Division, the Anatomical Curator, and the Navy Public Works Center, the renovation project began, in December of 2001, and was successfully completed, during 2002. During 2003, designs and cost estimates were coordinated with the USU Facilities Division, the Anatomical Curator, and the Navy Public Works Center to upgrade the air handler unit that services the anatomical teaching laboratory; resources were identified and the project was funded, at the end of 2003.

Upgrades for the Teaching Laboratories and Conference Rooms. In the past, the University utilized oscilloscopes and chart recorders to facilitate the teaching of physiological changes, due to disease and treatment, in the first-year teaching laboratories. These units were failing and replacement equipment was becoming increasingly unavailable. Following the identification of the need to replace the twenty-five-year-old system, MDL planned, justified, secured funding for, purchased (during 2000), and installed (during 2001) a system of computer-based teaching workstations at each of the first-year laboratory tables. Since the installation of the computers in the teaching laboratories, the USU SOM Department of Anatomy, Physiology and Genetics (APG) has utilized the new resource for laboratory exercises. The students learn to monitor their heart rates and to run a series of experiments studying the changes in heart rates. Once students have become familiar with the basic operation of the equipment, it is used in the advanced cardiac physiology laboratory exercises. Both of these teaching laboratories have been judged to be quite successful by the students and faculty. *While the computers were purchased primarily to replace the physiological recorders mentioned above, they have become a source of greatly expanded, computer-assisted, teaching applications in a variety of disciplines.* For example, because of the powerful nature and adaptability of these new tools, the MDL received requests from Biochemistry, APG, Neuroanatomy, Microbiology and Immunology, Pharmacology, and Radiology and Radiological Sciences for the expanded use of this equipment in their laboratory exercises. Through the utilization of the centralized and networked controls of this computer system, a wide variety of demonstrations, laboratory simulations, experimental exercises, and testing procedures are currently being used, or are under development for expanded use, by multiple SOM Departments. Additionally, this equipment is planned for use in computer-based testing applications. These demonstrations, simulations, exercises, and procedures have been found to provide cost-effective, true-to-life, experiences for students that were not formerly available; and, they have been so successful that plans have been made to duplicate the system, throughout the second-year student laboratories.

During 2002, the MDL procured and integrated eight new LCD projectors for use in the USU laboratories and conference rooms. Because many USU departments have increased their use of computer presentations, during laboratory exercises and lectures, the MDL has been increasing its state-of-the-art computer projection equipment for use by the USU community. This has allowed the instructors greater flexibility in selecting the teaching modality for presenting material to the students. In fact, the MDL ordered sufficient LCD projectors to permanently mount one in each teaching area and increase user capability, throughout the USU laboratories and conference rooms; this upgrade was mostly completed, during 2003. Also, during the past year, the University leased an additional fifty computers for use throughout the MDL. These, added to the original fifty, have significantly increased the capabilities for the instructors to use a broad range of tools for instructing USU students. As described above, the SOM Department of Anatomy, Physiology, and Genetics utilizes the computers in three of four teaching blocks; and, the Pathology Department was among the first to utilize the computers for testing medical students. Based upon the success of Pathology's process, several other SOM Departments were interested in similar activities, during the 2003 Academic Year; the students also use the computers as an additional study resource for reviewing class materials and presentations. During 2002 through 2003, the MDL replaced the computers used for presentations throughout all of the USU lecture halls; again, that process was streamlined, due to excellent planning by MDL, for future upgrades.

Scheduling of Room Requests for the University. Throughout 2003, the MDL managed and supported over 2,500 room requests for teaching and meeting requirements; many of which were for multiple rooms over numerous timeframes. Support has been provided by the MDL staff for numerous international conferences and workshops, during the past years. The MDL continues to provide superb service to faculty, students, and staff at USU (as noted during the Self-Study for the Middle States Commission completed for the 2003 Site Visit) and to meet the needs of the military medical community for space and teaching support.

The Learning Resource Center - Globally Available.

The Learning Resource Center staff is highly trained and knowledgeable and is responsive to the needs of students and faculty... The LRC staff is effective in meeting the changing demands of the University community. *They have blended the traditional print resources with the electronic versions to achieve a broader scope of information that is accessible worldwide.* The growing collection of unique web-based resources will enhance the University's position in the academic world.

The physical library is well maintained and cataloged. In conjunction with its mediated database and interlibrary loan services, it provides ready access to biomedical and clinical information in support of educational programs. A variety of computerized web-based resources supports information retrieval and management, and offers students opportunities for self-paced learning. The LRC has also made a strong commitment to working in teams with the academic departments to develop programs and services to better serve its user populations.

- *Institutional Resources*, Chapter III, USU Self-Study Report to the Commission on Higher Education of the Middle States Association of Colleges and Schools, prepared for the 2003 Site Visit, page III-14.

World-Wide Access for Health Sciences Information. The Learning Resource Center (LRC) ensures that students, faculty, alumni, and other members of the USU community can continuously access current medical and scientific knowledge-based information twenty-four hours a day, seven days a week. This is accomplished through the LRC's unique Remote Computer Services (RCS), using Web technology to deliver content. LRC customers/patrons are provided immediate access to electronic books, journal articles, and data bases in the practice of evidence-based health care; they may be searching for a new or alternative treatment, diagnostic tests, background information for case presentations, or literature in preparation for a research article or grant. They can do so whether or not the LRC is open and from a duty station, anywhere, in the World.

Throughout 2003, the LRC continued to ensure that its electronic resources were globally accessible. Unique gateway software enabled users to access on-line health care information from Kosovo, Japan, Iceland, Bosnia, the Republic of Georgia, Germany, Iraq, Italy, the United Kingdom, Turkey, and Saudi Arabia, on board ships traveling around the World, and from sites located throughout the United States. Selected examples of the LRC customer base include: all four classes of USU medical students; Graduate School of Nursing students; USU graduate students; USU alumni; distance learning students; USU faculty both on and off campus; health care providers throughout the Military Health System (MHS); and, the Office of the Secretary of Defense. Not only did the LRC Remote Computer Services provide access to the USU electronic services for the USU family, it also provided access to additional electronic books, journals and data bases from other Federal scientific, medical, and research libraries. ***The LRC added servers to support an increasing computational load; it tallied its entire user***

base of 7,850 customers to determine that there was an average of 17,000 accesses per month, or a total of 210,000 accesses, during 2003.

Enhancement of Customer Service. During 2003, the LRC began a quarterly electronic newsletter to inform its patrons of new and changing library services. The revamped and up-dated *Patron Handbook* details library services, hours, contact information and procedures. In addition, a new, attractive public relations hand-out was developed, during 2003. The LRC cut its delivery time of materials to other libraries to 24 hours or less, down from the previous response time of one to two weeks. The LRC staff provided articles to other libraries within four to 24 hours, during the business week (*in general, the LRC completed loan requests, during 2003, within four to six hours*). ***Patient care requests, issued on an urgent basis, were generally completed within one hour of the initial request.*** Once an article has been screened into the *ARIEL* software, instant transmission can take place over the Internet. The LRC routinely utilizes the *ARIEL* software to transact inter-library loans, at any time, during the day.

In 2003, the LRC became a member of E-Delivery Southeastern Atlantic Region (ESE/A), which is a consortium of *Doc-line* libraries in the National Network of Libraries of Medicine Southeastern/Atlantic Region. ESE/A members provide electronic delivery of inter-library loan documents, within 48 hours; this, in turn, has facilitated the expeditious delivery of inter-library loans for the USU customers. The inter-library loan service works well for USU; and, the LRC can rapidly receive articles for its patrons. The LRC staff continued to meet traditional information requirements by providing print articles and books to its patrons and libraries around the World. ***During 2003, 2,800 articles or books were requested by the LRC from other libraries; this was an increase of 1,100 items over 2002.*** This increase may result from the expanded use of *Loansome Doc*, a user-friendly method for ordering articles, after accessing *PubMed* or the *NLM Gateway*, and/or the increased instruction, provided to the LRC patrons, by LRC staff on the usage of on-line data bases, over the past year.

The LRC filled 5,358 of its patrons' requests for books and journal articles, during Calendar Year 2003. Requests were generated from local hospitals, universities, and medical schools, as well as the National Institutes of Health (NIH), entities collaborating with Fort Detrick, the Walter Reed Army Institute of Research (WRAIR), the Walter Reed Army Medical Center (WRAMC), to name a few. The LRC also reached many physicians, nurses, students, and patients by providing medical articles, which they had requested through their local medical or public library.

Renovations During 2003. The physical environment of the LRC underwent significant renovation, during 2003. Due to careful coordination with the USU Facilities Division and the tremendous patience and dedication of the LRC staff, the implementation of the much-needed renovations described below did not prevent the LRC from supporting its patrons, during the past year.

Renovation of the Heating, Ventilation, and Air-Conditioning (HVAC) System. During 2003, the HVAC System throughout the LRC was replaced, following the identification of the essential requirement to replace an antiquated system, that was no longer providing adequate service, throughout

the LRC. This was an extensive, time-consuming process; and, although the work took place during the evening hours, it did impact the customers' usage of normally open and accessible areas. However, the benefits now enjoyed by the LRC staff and their patrons, has more than justified the temporary inconveniences experienced, during the renovation process. Indeed, the new HVAC System not only provides a more comfortable environment, it is also serving to better preserve the books and journals within the LRC. ***Replacement of Carpeting in the LRC.*** During the Fall of 2003, the LRC experienced the much-required, yet, inconveniencing replacement, of its carpeting. As with the HVAC renovation project, work was scheduled during the evenings; however, once again, the process briefly impacted the access of patrons, during working hours. Again, the final result was found to be well worth the temporary inconvenience. ***Relocation of the Circulation Desk.*** With the HVAC renovation and the replacement of carpeting, the LRC recognized an opportunity to relocate the circulation desk nearer to the front entrance of the LRC; now, the patron is greeted by LRC staff upon entering and exiting the LRC.

Reliable Leadership and User-Friendly Access.

The Learning Resource Center is noted as one of the best assets of the University by both faculty and students. A recent faculty survey revealed the majority of both on- and off-campus respondents to be satisfied or very satisfied with library services. Students are consistent in their praise of the facility and of the accessibility and helpfulness of the staff.

- **Report of the Evaluation Team, Commission on Higher Education of the Middle States Association of Colleges and Schools, April 2, 2003.**

Since its establishment, the LRC has succeeded in providing both an outstanding learning environment and state-of-the-art educational tools for the USU students and faculty. Following the retirement of **Chester J. Pletzke, Founding Director of the USU Learning Resource Center**, during 2002, a Nation-wide search was conducted by the University. In mid-November of 2002, **Ms. Ursula Scott was selected as the new Assistant Vice President for the LRC.** In this position, Ms. Scott not only has oversight for the LRC, she also focuses on outreach activities. This outreach includes providing a gateway to electronic content for other DoD research or medical libraries, along with group purchases. (During February of 2004, Ms. Scott was elected to serve a three-year term, beginning in May of 2003, as the Chair of the Federal Library Section of the Medical Library Association.) **Ms. Janice Powell Muller served previously as the Acting Director of Campus Learning Resources; since the hire of Ms. Scott, she has held the title of Director of Campus Learning Resources.**

Recognition Received During 2003. During 2003, the LRC received three, much appreciated, accolades from its patrons. The first of these was a *Letter of Recognition* from the USU Faculty Senate, thanking the LRC staff and relaying the results of the faculty survey in preparation for the Site Visit from the Middle States Commission on Higher Education (quoted above). The survey results verified that the LRC "received consistently satisfied ratings and several very complimentary comments. Eighty-six percent of the faculty members who responded to this question (208 of 242) indicated that they were

satisfied or strongly satisfied with the LRC services.” In addition, the USU Class of 2005 presented the LRC team an *Award of Appreciation*; and, the 2003 Faculty Senate Research Committee presented the LRC staff with a *Meritorious Service Award*, a plaque, which is displayed near the LRC entrance.

Reference Services. Reference services continued to expand, during 2003. A new emphasis on teaching was demonstrated with over 15 classes, provided by the LRC staff, on *MEDLINE/PubMed* searching, public health resources, *Current Contents Connect*, and *EndNote*. In addition, a series of classes on library resources and publication strategies was designed for the Graduate School of Nursing and the Master in Public Health Program. The LRC Reference Department was asked to address incoming advanced nursing and graduate students, shortly after their arrival at the University; thus, providing an early orientation to the LRC.

Research guides and bibliographies were updated. A new guide was also developed for the faculty and residents in the National Capital Consortium. This guide now serves as a resource for pediatric clinicians, with links to clinical resources, such as growth charts, immunization guides, pediatric calculators, and the LRC full-text electronic resources. The LRC highlighted its resources during Research Day, in May of 2003, and prepared a bibliography on Translational Research, with links to full-text resources, available through the LRC on Remote Computer Services.

Essential Science Indicators, an ISI evaluation tool, ranks the top journals and nations, and the top 1 percent of scientists, institutions and companies by field of research. To be even listed in any one category, an institution has to be in the top 1 percent by number of citations in the period covered by Essential Science Indicators (ESI). For the period covering the last ten years, the LRC was able to validate that USU ranked in the top 1 percent in seven fields: Clinical Medicine; Immunology; Biology & Biochemistry; Microbiology; Neuroscience & Behavior; Psychiatry/Psychology; and, General Social Sciences. This rating was based on the number of citations received by papers published by the USU faculty, during the period. With the acquisition of ISI's Current Contents Connect and other electronic resources, the reference department was also able to help patrons set up search alerts on their research topics. In September of 2003, the LRC purchased Journal Citation Reports (JCR), which is a source for impact factors of various journals in science and social science. In addition, the LRC Reference Librarian was actively involved with the Bioethics class given to the second-year medical students as a discussion facilitator, as well as providing library instruction for the Bioethics paper; the Reference Department continued to provide mediated searching for faculty and students, as well as *EndNote* assistance for patrons preparing manuscripts for publication.

Remote Computer Services. Since its establishment, the LRC has continued to diversify and update its resources to meet its customers' changing requirements. For the first time, the administrative data bases were redesigned, resulting in statistical reporting by electronic service, throughout 2003. This function now offers USU administrators improved data, with which, to make funding decisions. Several large projects were undertaken to design custom pages for new initiatives; the header space, which had been previously empty, is now filled with library information, the USU seal, and selected other links. A copyright statement pertaining to the LRC electronic resources was also incorporated.

Computer Classroom/Laboratory. The LRC's computer classroom provides 40 workstations, to include an instructor's station. When it is not being used for classes, the students utilize the laboratory for assignments and electronic activity. The LRC Computer Classroom hosted 164 teaching sessions during 2003, with twenty to thirty sessions per month. LRC staff reserve, prepare the set-up of equipment, and provide technical assistance for these classes. The classroom was used for academic instruction with hands-on practice by the following USU activities: Departments and Programs in the SOM (Biomedical Informatics; Dermatology; Family Medicine; Medical and Clinical Psychology; Molecular and Cell Biology; Pharmacology; and, Preventive Medicine and Biometrics); the Graduate School of Nursing; Faculty Development; Contracting; the Learning Resource Center; Finance; and, University Information Systems. In addition, the Graduate School of Nursing and the Departments of Pathology and Dermatology made extensive use of the classroom for on-line examinations and quizzes.

Library staff members taught sections in *Introduction to Computers for Molecular and Cell Biology*, *Computer Fundamentals for Master of Public Health*, *Nursing Research*, *Educational Methods*, *PubMed*, and numerous faculty development seminars and student, faculty, or staff orientations. In addition to the computer classroom, there are approximately 50 additional computers available in the LRC for student and faculty use. While the majority of computers are PC's, the LRC does provide 23 MacIntosh OS computers. There are heavy-duty printers, scanners and CD burners, along with special software packages, which are also used for educational purposes.

Microcomputer Help Desk. Members of the LRC's Applied Medical Informatics Branch staff the help desk. They answer technical questions in-house, on the telephone, and from e-mails sent by clinical faculty, students, and researchers on assignments around the World. The help desk not only supports the computers in the LRC, but also provides assistance to patrons experiencing problems related to the Remote Computer Service. The help desk is part of the effort to provide extraordinary customer service, as well as to assist students in becoming *computer literate*, as appropriate.

Internet Information Resources During 2003. During 2003, the LRC staff continually updated and refined data bases, which gave thousands of patrons access to electronic medical and military resources, over the Internet. With more than 6,500 electronic books, journals, and data bases available to LRC users, making certain that all links and holdings were accurate required extensive manpower.

1) **Books.** Standard textbooks are available in all major medical specialties. All electronic editions are constantly updated; and, thus provide the most current information for the practice of health care. Currently, there are more than 289 full-text electronic books available, through the LRC. The collections purchased by the LRC are Books at *Ovid*, *Stat!Ref*, *AccessMedicine*, *AccessScience*, *Annual Reviews*, and individual books, such as *Scientific American Medicine*.

2) **Journals.** Conversion to the electronic editions of health-related journals, or periodicals, continued throughout 2003. The LRC currently has 6,322 full-text journal titles available on-line. Publishers continued to expand their on-line offerings; and, the LRC provided access to as many, as possible. Most journals are accessed through collections purchased from the American Medical

Association, the American Association for Cancer Research, the American Association for the Advancement of the Sciences, the American Chemical Society, the American Society for Microbiology, Blackwell's Synergy, *BMJ*, Cell Press, EBSCO's Medical and Nursing Collections, Gale, Highwire Press, Kluwer, Lancet, Nature, Ovid, Oxford, *ScienceDirect*, Taylor and Francis, and Wiley. By using Remote Computer Services, a patron can download or print articles at his/her own computer. In addition to the titles available electronically, there are hundreds of titles where library staff can print articles on a pay-per-view basis; *Docurights*, Ingenta, Karger, Sage, and Springer provide this service.

3) **Databases.** The LRC's Remote Computer Services offer access to 170 databases and other resources for research and learning. In 2003, the LRC expanded access to the extremely popular *UpToDate* database, to include two years of graduate student publications. Access to such vital medical resources, such as *e-Medicine*, *MD Consult*, *Micromedex*, *PsycInfo*, *MEDLINE*, *CINAHL*, Evidence-Based Medicine Reviews, *HaPI*, and Current Contents, continued throughout 2003. *Tomes Plus* has also been added to the LRC *Micromedex* subscription. The LRC discontinued the *Knowledge Finder* search engine; however, the LRC added *Ovid Medline* and continued the use of *PubMed*. Students prepared for their Medical Boards by using *Exam Master: USMLE Step 1, 2, & 3*. These computer programs simulated the tests that the SOM students would be taking.

Archival Collection for Preserving the University's History. The primary functions of this LRC unit are to preserve, arrange, and describe items of significance to USU history and rare collections. The mission is to preserve and make accessible materials that document the history and unique qualities of USU, as well as, the history of military medicine. With the advice and financial support of senior management, along with **Val Hemming, M.D., Professor and Dean Emeritus, USU School of Medicine**, and the USU SOM Department of Medical History, the LRC continued to make great strides in implementing an archival program for the University. The Archival Collection has received donations from USU faculty members and administrators. These collections provide invaluable historical information on the significant activities of USU, to include USU Faculty Senate minutes and papers, select AFRRRI papers, USU Graduation information, and others. A significant collection of papers from the Society of Medical Consultants of the Armed Forces has also been obtained. Holdings currently consist of 70 linear feet of space. Standard archival procedures for organization and storage are employed; documents are stored in acid-free document cases, ensuring their availability for future researchers. Search aids, including the use of specialized computer data bases, will facilitate easy access for future researchers. This unit provided world-wide access to key documents for research, via the Internet.

A Digital Archival Collection. A significant accomplishment of the LRC Archival Collection was the development of a digital archival system. Since 1999, this program has grown into an expanded electronic collection of over 135 historical documents, available through the LRC web site: <[http://www.lrc.usuhs.mil/\(select\)Military Medicine Historical Documents](http://www.lrc.usuhs.mil/(select)Military%20Medicine%20Historical%20Documents)>. Historical, military, and medical documents already owned by the LRC are being scanned into Adobe's Portable Document Format (PDF), for universal use. When possible, Optical Character Resolution (OCR) is being used to make the documents fully searchable, in both MacIntosh and Pc formats, while maintaining the page format of the original. This special project includes documents from the Civil War through the Korean War. In addition to historical documents, USU theses and dissertations have been digitized. Theses by the Graduate

School of Nursing students, written since 1998, and recent SOM Graduate Education dissertations and theses in the Biomedical Sciences and Public Health, are included. Any current, or former students, who have written theses or dissertations for USU, are encouraged to submit an electronic format of their work to the LRC, for conversion to PDF format and placement on the web site. Thus, access to the research and findings of USU students will be available and showcased for the World to see. To date, there are over 140 theses and dissertations placed on-line.

The Archival Collection maintains a bibliographic database of the USU faculty publications. The Faculty Publications Database is accessible through the LRC web site: <<http://www.lrc.usuhs.mil/>>. The database is updated weekly and includes information from, as far back as, 1974. Currently, there are more than 13,000 journal and book citations in this database.

National and International Visibility for the LRC. The LRC has expanded its national presence by joining a number of organizations and associations. Membership in *BioMed Central* allows any researcher or student, at USU, to publish an unlimited number of research articles in journals published by *BioMed Central*, without paying any article processing charges. Access to the research published in *BioMed Central* journals is open (freely available at <www.biomedcentral.com> and at the National Institutes of Health's electronic repository of full-text articles <www.pubmedcentral.nih.gov>. These peer-reviewed journals are available to a global audience.

The LRC joined the Association of Academic Health Sciences Libraries (AAHSL), which is comprised of libraries of accredited United States and Canadian medical schools belonging to the Association of American Medical Colleges (AAMC). The LRC has begun to participate in the *Annual Statistics of Medical School Libraries in the United States and Canada*; it has also continued its membership in the Medical Library Association, the American Library Association, the Special Libraries Association, *FEDLINK*, *OCLC*, and a regional consortium, *Palinet*. And, significantly, the LRC has continued as a full member of the National Network of Libraries of Medicine, which is sponsored and supported by the National Library of Medicine.

Support to Military Medical Libraries and Institutions. The LRC has a program to provide access, for medical and research personnel, to electronic knowledge-based information. This sharing of LRC expertise and computing capabilities enables libraries and groups, which do not have technical staff, to access their own subscriptions, via customized web pages. This program, of assisting others, allowed members of other entities to perform their work better, faster, and more efficiently, because they had access to the most current information from any location with access to the Internet. Registered members of this LRC access program have individual IDs and passwords for accessing the various resources.

In 2003, the LRC greatly expanded the number of resources furnished to the Walter Reed Army Institute of Research (WRAIR) and the United States Army Medical Research and Materiel Command (USAMRMC). Substantial savings were generated for WRAIR, USAMRMC, and USU through the joint purchase of subscriptions. Likewise, USAMRMC and WRAIR began sharing their electronic purchases; thus, a broad base of participants received increased access to electronic books and journal articles. In addition, the Naval Medical Center at Portsmouth, Medical Services from the Department of State,

and Partners for Peace Information Management continued their agreements to allow members the use of Remote Computer Services for accessing their electronic resources. New additions to the program include providing service to DoD Patient Safety Officers and members of the Pentagon Force Protection Agency; the University received some compensation for its participation. Additionally, researchers at numerous facilities were able to improve collaboration with the USU faculty, through common access to these electronic knowledge-based resources. In effect, the LRC is participating, in changing the speed of information delivery, throughout the DoD.

During the past year, a major LRC initiative included the provision of access to electronic resources for the interns and residents throughout the National Capital Consortium (NCC). The NCC residents used the LRC's Remote Computer Services as their entry point to electronic resources. To facilitate this effort, the librarians at the local military teaching hospitals were visited to obtain their participation in this effort. These librarians assisted the NCC residents with initial training and the identification of the multiple services of the LRC. The LRC librarians also participated at various morning conferences to inform the NCC residents of new reference services; e-mails were another form of communication utilized with the NCC program directors, USU off-campus faculty, and residents.

In 2003, the LRC hosted a number of tours for visiting dignitaries including international visitors from Tbilisi, Georgia; Israel; and, Surgeons General from many nations. Members of the Medical Strategic Leadership Program, the new USU Board of Regents, and the leadership from the American Medical Association are a few examples of the distinguished visitors to the LRC.

A Quick Look at LRC's Print and Electronic Resources.

Collections:

<i>Print Volumes</i> (Book and Journal)	109,210
Electronic Book Titles	289
<i>Print Journals</i>	760
Electronic Full-Text Journals	6,322
Educational Software	65
Electronic Databases	173

Informatics - An Expanding and Essential Component of Education in the Health Sciences.

Background. Efforts in computer-assisted instruction as a study aid for USU students have been ongoing, since 1979, when a series of medical students developed, in Apple Pascal, the first drill and practice question bank within the SOM. Course directors provided questions entered into the University Board Review System. In succeeding years, several departments (Biochemistry, Pathology, Pharmacology, and Physiology) developed their own on-line examination archives or examination item databases, which have been well received by the students. Over time, this type of material was delivered to students first on stand-alone computers, then on networked computers (*HyperPharm*, *HyperRenal*, and others) and most recently as world-wide-web (WWW) based sites accessible both inside and outside of the University by students in the SOM Departments of Biochemistry, Pathology, Pediatrics, Pharmacology, and Physiology and the GSN students majoring in Nurse Anesthesia and Nurse Practitioner. One of the most ambitious of these efforts has been the Biochemistry question database of examination questions for testing, which was developed between 1991 and 1996. This archive is available at <<http://bob.usuhs.mil/biochem/exams/exams-f.html>>.

Innovative Web-Based Study Aids, Teleconferencing Sessions, Exercises, and Course Administration. Image-based study aids have been developed by the USU faculty. The earliest of these efforts were Radiological Anatomy, Neuroanatomy, and Chest Film Review laser disc programs developed and deployed, between 1985 to 1995, by the Department of Radiology and Radiological Sciences. In 1996 and 1997, this material was also made available to students as CD-ROMs; and, in 1997, the material was migrated on the WWW at <<http://rad.usuhs.mil/rad/edu/edu.htm>>. The Department of Radiology and Radiological Sciences has established collaborative efforts with faculty at the Mayo Clinic Foundation and Emory University, which provide USU medical students access to the Visible Human data set. Both SOM and GSN students utilize this resource. Another current effort encourages the students to draw correlates between anatomy, physical diagnosis, clinical neurology, and radiology.

Currently, USU uses interactive, real-time video teleconferencing to link five different sites for its six-week clerkship in Obstetrics and Gynecology. In sessions that last from 60 to 150 minutes, site coordinators meet with the clerkship directors and administrative personnel to discuss such crucial issues as curricula, student problems and evaluation, and faculty development. Since the sessions began, in May of 1998, USU has found that the sessions enable the standardization of curricula, facilitate the sharing of ideas, reduce administrative tasks through centralized support, and improve the meaning, consistency, and level of detail in student evaluations. (*See Section II, Third-Year Curriculum for additional information.*)

The Physiology Course (Graduate Education and SOM first-year students) provides an acid/base game in which students diagnose an acid/base disorder from patient data on a Davenport diagram, treat the disorder, and see what the treatment does to the patient. Other exercises include body fluid compartments and Yannet-Darrow diagrams, and the control of glomerular filtration, T_m and the countercurrent mechanism. These exercises are treated as a regular laboratory in the course. The Pharmacology Course (Graduate Education, GSN, and SOM second-year students) has included a computer-based pharmacokinetics simulation exercise and a computer-based drug information exercise,

as integral parts of the course for the last 16 and 11 years, respectively. These exercises, designed by USU faculty, are conducted individually by students or in small groups in the Learning Resource Center (Nurse Anesthesia, Graduate Education, and SOM second-year students).

Over the past six years, on-line quizzes and formal examinations have become more widely used by both the SOM and the GSN. One of the first, routine on-line quiz at USU was introduced, during 1999-2000, in the Department of Medicine's (MED) Clinical Concepts Course. Subsequently, similar quiz material was introduced in MED's Introduction to Clinical Medicine, Biomedical Informatics, Radiology and Radiological Sciences, and the Health Service Administration Division of Preventive Medicine and Biometrics Courses. The GSN Pharmacology Course for Nurse Anesthesia students introduced formal examinations as an on-line exercise, during the 2000-2001 Academic Year. This effort continued, during 2003, and was expanded to other GSN courses. The GSN intends to move most formal examinations to an on-line format; *the SOM Department of Pathology completed a conversion from paper-based formal examinations to on-line examinations, during 2004.*

The USU SOM Department of Medicine has introduced a widely used innovation in course administration. *CWebLog* is a WWW-based database for logging students' clinical experiences, during the medicine clerkships. As students submit data, they may be presented with a set of reviewed links related to the type of case they are reporting. Student entries are stored in an SQL database that is used to produce browser-based reports on any combination of clerkship experiences. A preliminary description of this project has been published and is described at: <<http://cweblog.usuhs.mil>>. Over subsequent years, all of the seven SOM clerkships have adopted *CWebLog* as one means of recording student experiences in the clinic. The project was expanded to include the collection with PDAs (the Portable Digital Assistant (PDA) Initiative is discussed under *The Department of Biomedical Informatics*, which follows in this section). Data from these devices is synchronized to the same SQL database as is data from personal computers and a web browser. The GSN Nurse Practitioner faculty use a similar WWW or Portable Digital Assistant (PDA)-based system and the GSN Nurse Anesthesia faculty utilize data collection in a spreadsheet format aggregated in their department's office.

MedPix, An Internet Teaching File for the Health Sciences. The USU *MedPix System* was developed to offer medical students, researchers, and clinicians a descriptive on-line database housing medical case examples. The database provides a fully-functional archive of clinical photographs and radiologic images, primarily of abnormal and disease conditions. Today, there is a shared Internet teaching file filled with a variety of illustrated medical cases available to anyone interested in learning more about an affliction or in sharing information and images from cases they have seen. These cases are further complemented with posted summaries, reports and editorial comments. **James Smirniotopoulos, M.D., Professor and Chair, SOM Department of Radiology and Radiological Sciences**, and third-year medical student **Ensign Henry Irvine** originated the USU program as a text-only database with aspirations to develop it into a multi-level program. Instead of using only static web pages, it was decided to use a database and dynamically generated pages. The intention was to allow its users, at remote sites, the ability to add images and cases into the database. The site began with a Radiology intent and has since branched off into the Dermatology and Pathology disciplines. Visitors to the site can also practice identifying ailments by selecting a *hide-text* feature. This allows the user the opportunity to take a self-quiz before the introduction to the actual illness. It is now an impressive site in terms of complexity and depth of resources. *MedPix* is also recognized as a powerful teaching tool for residents.

By 2001, Radiology residents were using *MedPix* data for teaching files at such hospitals as the Tripler Army Medical Center, the Naval Medical Center at San Diego, and throughout the National Capital Region. Continuing through 2003, Doctor Smirniotopoulos' Distance Learning Program has provided monthly Neuroradiology Teleconferencing between USU and the Naval Medical Center in San Diego, California. In addition, Doctor Smirniotopoulos has received approval for providing on-line continuing medical education (CME) and continuing nursing education (CNE) through his *MedPix Radiology Teaching File*; the program provides one hour of Category 1 CME or 1.2 hours of CNE for every four *MedPix* cases. The *MedPix Database* currently supports all of the DoD Diagnostic Radiology Residency Programs by administering and hosting commonly shared files. *MedPix* has over 7,000 registered users, although registration is not required for simple case review. During 2003, the *MedPix* database was upgraded to include a secure web server for log-in and user administration. *MedPix* has delivered more than 11,206,663 pages since September 3, 2000; and, it is the longest running *Case of the Week* program in the world. Doctor Smirniotopoulos has also begun a *Teach the Teachers* project, sponsored by an educational grant from the Radiological Society of North America (RSNA) to train 6-8 African Radiologists in Tropical Imaging. This competitively chosen group will spend seven weeks at USU in classroom, small group, and independent study. The radiologists will then return to their home countries to share their experiences at USU.

Compact Disc Provides Cost-Effective Assistance. The Department of Pathology has digitized its entire 2x2 slide collection, some 1,300 images, used in the MS-II Pathology Course; the images are available to students via the WWW. The Pathology Department has developed a compact disc of approximately 1,000 photographic images of pathological specimens. Directed to second-year medical students, the compact disc provides assistance for preparing for pathology laboratories and examinations; the disc provides a comprehensive collection of images covering all major organ systems. The department finds that the compact disc increases the accessibility of images to students and results in significant financial savings, because duplication costs for lost or damaged 2x2 slides are eliminated. In addition to the image data bank, this WWW site archives old examinations and the SOM Pathology Laboratory Manual, and administers 14 quizzes to students during the course. Each year, USU students access the 14 on-line quizzes, which use photographic images, answer the quiz questions in an open book format, and submit their answers electronically to the department. A data bank of questions written by USU faculty are archived by computers and used in testing medical students. The use of archived questions allows the department to compare class performance from year to year and to evaluate the quality of the questions, which has reduced ambiguity in examinations. (The Department of Anatomy, Physiology, and Genetics (APG) has also digitized large portions of its 2x2 histology collections.) These digital collections are available to students on and off campus. The Department of Pathology uses Internet technology to provide a web page independent of the University's web site. This page enables students to access information regarding Pathology's educational activities, links them with other medical schools and pathology web sites, informs the public of USU departmental personnel and research activities, and advertises the department's Ph.D. Program in Pathology. In recognition of the need for the deployed military physician to have access to Continuing Medical Education (CME), the Pathology Department has also used computer technology to provide CME credit to these physicians. Through this web page, uniformed physicians could review cases written by the pathology faculty, answer a series of questions based on the specific case, and receive CME credit. More than 300 CME certificates have been issued by USU for this activity.

eMedicine.com - USU Faculty Help to Revolutionize Medical Textbook Publishing. During 2001, two USU department chairs and many other USU faculty played key roles in a publishing breakthrough that has redefined the way today's health care professionals can obtain timely and critical medical information (a skill which is essential to the medical students' future practice). This publishing breakthrough is called *eMedicine.com*; and, its impact is worldwide. *eMedicine.com*, the medical education network that has developed the first and largest on-line, peer-reviewed medical reference library, is available to the entire world, free of charge, assuming Internet access. It consists of 59 on-line reference books covering every medical specialty. Radiographic images, photographs, audio and video clips relevant to each topic are incorporated. Each chapter features 1.5 hours of Category I American Medical Association (AMA) Physician's Recognition Award continuing medical education (CME) credit. There are an estimated 15,000 hours of CME credit. Authors and medical editors are volunteers and are not compensated in any way for their efforts. There is significant supervision of content, with several layers of medical and copy editors to assure accuracy and quality. Unlike traditional textbooks, which can be as much as six years out of date at the time of publication, the information in the *eMedicine.com* chapters is updated 24 hours a day, 365 days per year. If an important new study is published in a journal, the research is immediately included in the on-line textbook. The United States military is the largest user of the site to date. There are at least five million users per year, and that figure is rapidly increasing every six months. **Leonard Sperling, COL, MC, USA, Professor and Chair, USU SOM Department of Dermatology**, is one of the editors and authors of the Dermatology Textbook on *eMedicine.com*. And, **James G. Smirniotopoulos, M.D., Professor and Chair, USU SOM Department of Radiology and Radiological Sciences**, is one of the editors-in-chief of the Radiology Textbook on *eMedicine.com*. Many other USU faculty members also contribute to this web site.

Virtual Reality-Based Environment for Teaching Clinical Anatomy. *Anatomic VisualizeR* is a virtual reality (VR)-based environment for teaching and learning clinical anatomy, which was initially developed by the University of California, San Diego (UCSD). Educational applications of *Anatomic VisualizeR* have been jointly explored by UCSD and USU. *Anatomic VisualizeR* made its curricular debut outside of UCSD, in 1999, when it was used for teaching two graduate-level nursing Neuroscience lectures; USU was the first school approved to use *Anatomic VisualizeR* outside of the UCSD. The two universities have jointly developed six new lessons. The application is utilized by both the GSN (Neuroscience and Pathophysiology) and the SOM (Introduction to Structure and Function). *Anatomic VisualizeR* provides a virtual dissection room in which students and faculty can directly interact with three-dimensional models and concurrently access supporting curricular materials. A broad range of virtual exploratory tools enables users to investigate structures in ways not possible in the real world.

The USU Clinical Simulator, Patient Simulator Laboratory, and SIMCEN Present Scenarios Applicable to Combat Casualty Care, Anesthesia, Critical Care, Trauma, and Emergency Medicine. During 1997, the USU Departments of Anesthesiology and Anatomy, Physiology and Genetics (APG), in collaboration with the National Naval Medical Center's Department of Anesthesiology, developed the Clinical Simulator and Patient Simulator Laboratory (PSL) located in the USU Department of Anesthesiology. The PSL has evolved into a fully interactive clinical training laboratory, equipped as an operating room with standard monitoring equipment, instruments, life support system, defibrillator, and complete audio/video recording equipment. This instructional facility supports training in combat casualty care, anesthesia, critical care, trauma, and emergency medicine. Students gain experience in

recognizing problems, developing decision-making skills, and refining techniques and procedures. ***During 2003, the PSL provided over 600 hours of University-wide support for course offerings.*** Throughout the past year, numerous groups of students and medical personnel made regular use of the PSL both as a training facility and as a research resource: 1) **USU First-Year Medical Students - Cardiovascular Physiology.** During the last six academic years, the PSL has been used as an integral part of the Physiology Course with the entire class of graduate and medical students rotating, in groups of eight, through a cardiovascular simulation. For these students, the simulator is used to complement a teaching laboratory that demonstrates the basic interactions of heart rate, blood pressure, cardiac output, stroke volume, and circulatory resistance; 2) **USU Second-Year Medical Students - Pharmacology Lectures Bring the Hospital to the Students.** In addition, the PSL provides live, interactive distance education presentations to the second-year SOM students for illustrating simulated, clinical examples, during their Pharmacology lectures; thus, bringing the hospital to the students through a newly installed Advanced Distance Education Network (*ADEN*) designed by the PSL staff; 3) **USU Third-Year Medical Students - Two-Week Anesthesiology Rotation.** The simulator helps these students to learn the fundamentals of anesthesia; they practice connecting a patient to external life support sources, such as an oxygen mask, a ventilator, or manual ventilation via endotracheal intubation. USU medical students combine the lessons learned about the physiology of gas exchange and physiologic and pharmacologic responses, while actually performing the procedures and administering anesthesia on the patient simulator, without putting a patient, or themselves, at risk; 4) **USU Graduate Students in Nurse Anesthesia in the MSN Degree Program.** USU Graduate School of Nursing (GSN) students undergo basic and advanced simulator training, during which they must handle unique cases with unexpected complications. In the Basic Principles of Anesthesia Course, GSN students use the simulator to practice airway management, interpret EKG patterns, practice line placement, and begin learning anesthesia induction; during the next semester, the simulator is used to expand on these basic skills. Some nurse anesthesia students use the simulator as a laboratory instrument for their required Master Degree Thesis Project; 5) **Walter Reed Army Medical Center (WRAMC) Nurses - ICU Certificate Program.** These nurses are exposed to advanced patient care scenarios that include extensive equipment use and critical medical situation training; 6) **Uniformed Anesthesia Residents from Military Centers in the National Capital Region.** These resident physicians are challenged with complex, specifically-tailored medical scenarios, designed to prepare them for dealing with critical, time-sensitive situations. For example, recent, incoming classes of anesthesia residents from WRAMC were given an extensive trauma training/evaluation with the simulator. When the GSN became concerned that its students were not prepared to deliver anesthesia under austere conditions, because they rarely had an opportunity to work with Field Anesthesia Medicine, the GSN Nurse Anesthesia faculty developed a CD-ROM on field anesthesia, which is now a required part of the GSN Anesthesia curriculum; 7) **Collaborative Efforts with the R. Adams Cowley Shock Trauma Center of Baltimore, Maryland.** In this area, the simulator is used as a test device to evaluate how experienced Emergency Room personnel can respond during critical medical emergencies; 8) **USAF Critical Care Air Transport Teams.** Once a month, USU hosts an Air Force Critical Care Air Transport Team (CCATT) session, during which the three-person team treats the simulator as a real case. Practicing nurses, physicians, and respiratory therapists are involved in the CCATT training scenarios. They receive a call that their services are required, gather their gear, leave their hospital (Malcolm Grow Medical Center), travel to the site of the patient (USU PSL), evaluate the patient's condition, and provide sufficient treatment to ensure successful transport of the patient back to a hospital. Once they leave the hospital, they can use only equipment and supplies that they brought with them.

The patient simulator, featured at: <www.usuhs.mil/psl/>, offers many benefits to students and instructors. Without putting a life at risk, students can experience handling rare conditions such as malignant hyperthermia, learn to recognize a wide variety of problems, practice using instruments and equipment, develop decision-making skills, and accumulate first-hand experience with military-specific problems like combat trauma. Instructors can tailor each case to individual students, selecting the type, level of speed, and degree of severity according to the student's level of competence. If the instructor wants to give feedback or additional directions, the lesson can be paused and repeated as many times as necessary. Sessions are recorded and played back, enabling the students, with the instructors, to analyze their performance and to recognize their strengths and weaknesses. Because no life is at stake, instructors can purposely push students beyond their competency levels so they can learn and retain critical lessons. The patient simulator is a valuable addition to the USU curricula, one that will play an expanded role in the future; only a small percentage of the 125 United States Medical Schools have patient simulators. Offering the single simulator in the PSL to teach a class size of more than 165 students requires complex scheduling. During 2000, collaboration between the PSL, the Simulation Center (SIMCEN) at Forest Glen, and the patient simulation facility at the Naval School of Health Sciences (located on the NNMC base) now provides access to a total of 12 mannequins that span the range of ages from newborn to adult, both male and female (four at the USU Military Medical Simulation Center (SIMCEN); two at the Naval Medical Education Training Command, located at the National Naval Medical Center; and, six mannequins at the PSL).

The National Library of Medicine and the USU *Internet2* Link for Distance Education. During 2003, the *Internet2* link provided by the National Library of Medicine (NLM) to USU has continued to serve as an invaluable component, in the on-going USU activities for leveraging the power of its simulation-based education programs, in order to reach large numbers of students via its distance education system. ***Live, two-way sessions are now sent between the USU PSL and:*** the USU Lecture Hall E for the first-year medical students; USU Lecture Hall D for the second-year medical students; the National Naval Medical Center/Naval Medical Education Training Command (NMETC) Simulation Facility; the Armed Forces Institute of Pathology (AFIP) Medical Museum in Washington, D.C.; and, St. Francis University located in Loretto, Pennsylvania. Within the past two years, the USU Patient Simulation Laboratory has acquired \$125,000 in extramural funding for *GigE Network Gear* to extend the NLM-provided *Internet2*, throughout the USU campus and the National Naval Medical Center (NNMC); the PSL is utilizing a \$240,000 clinical distant educational grant that will establish the *Internet2* links between USU, NNMC, NLM, AFIP, and the Walter Reed Army Medical Center as a test-case for world-wide telemedicine training and treatment for the DoD clinical community.

A Multi-Disciplinary Approach for Teaching Responses to Weapons of Mass Destruction and Terrorism. Beginning in 2000 and throughout 2003, the USU Patient Simulation Laboratory has provided educational experiences for both clinicians and emergency operations personnel in Weapons of Mass Destruction and Terrorist (WMD/T) scenarios, during a USU SOM Course, ***The Scientific, Domestic and International Policy Challenges of Weapons of Mass Destruction and Terror.*** The Course on WMD/T generally includes two modules: *Part I, The Emerging Threat of Biological Weapons and Bioterrorism*; and, *Part II, Nuclear, Radiological, High Explosives, Chemical Agents, and Unusual Weapons*. Simulated scenarios have been designed through the cooperation of experts in bioterrorism, chemical warfare, medical effects of radiation, and trauma. Students who take this course include senior

military officers, physicians, nurses, lawyers, career politicians, administrators, and logistic personnel. Part I culminates in extensive simulated crisis events including inhalational anthrax, pneumonic plague, marine toxins, and other biological agents. Part II culminates in an intense simulated crisis event involving the terrorist use of chemical, radiological and explosive devices. Non-clinical students, functioning as staff in emergency operation commands, embassies, and/or hospital response centers, manage conflicting information from on-scene observers, other agencies, and media resources. Clinical students, functioning as staff in an emergency room, provide direct care of multiple patients presented by both mannequin-based simulators and human actors. Debriefing entails discussions about performance in: leadership and followership skills; team performance and dynamics; communication skills; data management; logistic support; resource allocation; emergency declaration; assessment and reevaluation of situation(s); medical triage; medical diagnosis; medical treatment; containment of outbreak(s) or agent(s); and, appropriate notification of other officials. These simulated presentations have received overwhelming approval from the participants as documented in the students' course critiques. Course instructors have requested continuation of past presentations as well as new scenarios. Crisis Management following a WMD/T attack can be taught using patient simulation as the foundation for the event; and, multi-disciplinary input has resulted in simulated events which are overwhelmingly accepted by students. This experience allows personnel who will fill positions involving the management of a WMD/T attack to have their *first time for real* through a simulated educational event. (*The PSL is discussed in further detail in Section II, MILITARY UNIQUE CURRICULUM.*)

Virtual Reality Telepresence Surgery System. The USU virtual reality Telepresence Surgery System (*TeSS*) has gained recognition as an exciting technology training tool. Faculty members in the USU SOM Department of Surgery have been working with the system, since July of 1997. Wearing three-dimensional glasses, students place their hands on a surgical instrument. Peering into a video screen, students at the National Capital Area Medical Simulation Center' (SIMCEN) are able to *touch, tug, cut, or sew* the tissue displayed on the screen; they actually *feel* the movement. The reach-in display table issues a report on how well the student performs, during the procedure. The USU Division of Ophthalmology has coordinated with the Surgical Director at the SIMCEN, who is also a member of the USU SOM Department of Surgery, to enhance the surgeon further with this technology. The new addition to the *TeSS* system allows a magnified view of the eye, and scales down the hand motions of the surgeon from the magnified view and motions to the real microscopic motions in placing sutures accurately. In addition, tremor is dampened out of the system. *Thus, the surgeon's hands are now smaller and steadier and the surgeon's vision is improved to microscopic levels.*

Establishment of a Center for Informatics in Medicine. Biomedical data and the field of informatics continue to rapidly expand. Processes of knowledge retrieval and decision-making are critical to the future health care provider. In light of technology's role in knowledge development, biomedical informatics has become an essential component of education in the Health Sciences. Following graduation, health care professionals must be able to use biomedical information to define, study, and solve problems.

In 1996, decisions were made to establish a USU Center for Informatics in Medicine to be placed under the Vice President for Teaching and Research Support (TRS) as an interim step toward the creation of an academic Department of Biomedical Informatics. From 1997 through 1999, a coalition of CIM, the LRC, and the appropriate Dean's Office (SOM or GSN), initiated steps to prepare incoming

USU students for the expanded role of informatics in their studies and professional careers. It was recognized that if students are to fulfill the five key roles of health care providers - *lifelong learner, clinician, educator/communicator, researcher, and manager* - they must have the benefits of a dedicated biomedical informatics program. The Center for Informatics in Medicine has enhanced USU informatics research and education through introductory computer courses, a workshop on Internet applications in diagnostic pathology, and the development of such diverse areas as web sites on educational technology, military graduate education, and HIV in the military. During 2003, the Center continued to provide computer orientation courses for faculty and students. ***The Center maintains over 100 educational web sites for the University; these sites serve on-campus and distance students, residents, and faculty.*** Highlighted sites include Telegenetics and the University's on-line student assessment of instruction (for both the SOM and the GSN). Also provided are self-assessment, surveys, quizzes, and major course examination sites for the following selected examples of USU activities: the Faculty Senate; the GSN VA/DoD Distance Learning Program; the GSN Nurse Anesthesia and Family Nurse Practitioner options in the GSN MSN Program; and, the SOM Departments of: Anatomy, Physiology and Genetics; Medicine; Pathology; Pediatrics; Pharmacology; Preventive Medicine and Biometrics; and, Radiology and Radiological Sciences. CIM continues to have responsibility for video teleconferencing interface at USU; support has been provided to the GSN VA/DoD Nurse Practitioner Program (six sites); the SOM Department of Obstetrics and Gynecology Clerkship Coordinators Meeting (three to five sites); the 8th NASA Medical Topics: Occupational/Environmental Health and Safety Primer and Issues Series; and, a video teleconference between the SOM Department of Pediatrics and Rota, Spain, on a repeating basis.

Informatics Education. The doctor is the most highly trained individual in the health care system, and as such it is the doctor who should be the final judge of the data entered into the electronic medical record. If the medical record is also a research tool, then this gives a new responsibility and value added to the physician. Educating medical students to do this well is a major challenge. Students who are not exposed to this type of thinking and practical training in medical school will be at a disadvantage when it becomes the norm, as it surely will.

- Journal of Investigative Medicine, Volume 46, No. 8, October 1998, page 345.

The Department of Biomedical Informatics. In June of 1998, the Dean, SOM, appointed a committee to assist in creating the Department of Biomedical Informatics; during 1999, the USU Board of Regents approved the creation of the new academic department. The SOM's Department of Biomedical Informatics (BID) is recognized as a basic science department with three areas of specialization: bioinformatics, medical informatics, and education. It serves as a resource center to extend and enhance already strong curricula through departmental and interdisciplinary courses that: integrate basic sciences with clinical experiences; offer simulated clinical training experiences; continue current teaching efforts in introductory computing; and, focus on student-centered learning through case-based, small-group sessions. It also serves as a clearinghouse for USU informatics applications and provides a testing facility for informatics research. The department helps to ensure that all USU graduates have a foundation in informatics that will support them, as career professionals, in the Military Health System. Specifically, the charter for BID includes the following: 1) support for the curricula

through educational technology; 2) extension of the curricula through biomedical informatics; and, 3) identification and research of innovative informatics applications for military health care.

Since 2000, the Department of Biomedical Informatics (BID) has been charged to act as a resource center to *support* and *extend* the USU medical curriculum and to act as a *focus* for developmental and research activities in informatics. The university-wide operation of the Center for Informatics in Medicine has been retained as the department's service-based component. Research computing will eventually be reassigned to the Department of Biomedical Informatics and it will no longer be considered a part of the Information Services Management Center (UIS). The Department of Biomedical Informatics serves as the focal point for USU's academic computing support, spear-heading such activities as sequence analysis, statistical computing, and the student web page pilot project. It also solves problems associated with the University's widely dispersed informatics initiatives. In the past, attempts to incorporate informatics into USU curricula had been handled by individual departments, leaving the efforts vulnerable to collapse if a key member of the department left or was reassigned. The Department of Biomedical Informatics now serves as a central resource into which all departmental informatics endeavors can be incorporated. Resources for this department will be gradually increased in accordance with the requirements of the SOM and the Military Health System.

Two projects supported by BID, during 2000 and 2001, involved innovative education applications for military health care. A collaboration with the University of California at San Diego (UCSD) brought the National Library of Medicine's Visual Human to the USU campus as part of an application developed at UCSD - *Anatomic VisualizeR*. This 3-D visualization tool for the Visible Human Data Set uses a high end Silicon Graphics workstation for stereoscopic rendering of the data set. Currently, this collaboration has developed five lessons specifically for the SOM and the GSN Anatomy Courses. In August of 2000, the Dean of the SOM charged the Department of Biomedical Informatics to implement a USU Medical Portable Digital Assistant (PDA) Initiative. A working group of students, staff, and faculty devised a staged working plan to deploy the PDA to include: distribution and introduction of the PDA to the SOM students; usage training; communication deployment at USU; communication deployment to the Military Treatment Facilities (MTFs); and, evaluation and refinement of the initiative. The PDA devices were provided to the USU second-year medical students, in December of 2000. Studies have confirmed that physicians and medical students are able to successfully incorporate PDAs into their patient care workflow. With the use of a drug information database, clinicians save time, improve knowledge for themselves and their patients, and possibly decrease preventable adverse drug effects. The goal of the USU Medical PDA Initiative is the integration of this technology into the clinical setting. The objectives of the USU PDA Initiative follow: 1) communication while students are at clinical sites (HandDBase and associated databases); 2) clinical encounter log collection (*CWebLog* developed within the USU Departments of Biomedical Informatics and Medicine); 3) clinical reference material access (*qRx(ePocrates)* and 5-Minute Clinical Consult; and, 4) clinical calculator availability (*MedMath*). USU students are responsible for installing five applications and the *CWebLog* channel on their PDAs. During their clerkships, each student is expected to operationally maintain his or her PDA. The PDA serves as a significant option that the USU students have for maintaining a log of their clinical encounters. During 2001, this educational tool was determined to be a complete success and that distribution would be continued in the future. During 2003, the Department continued its support for the PDA Initiative. ***To date, Personal Digital Assistants have been issued to three classes of SOM and Graduate School of Nursing (GSN) students.*** The USU PDA Initiative was highlighted at the Symposium of the American Medical Informatics Association; and, the resulting paper, *The USU Medical PDA Initiative: The PDA*

as an Educational Tool, was submitted and published in the Journal of the American Medical Informatics Association, in November of 2002.

As mentioned above, during 2003, BID was responsible for the Clinical *CWebLog* (at <<http://cweblog.usuhs.mil/>>), which is used by USU SOM students to document their experiences during their clinical rotations; *CWebLog* is currently used by the seven third-year clerkships with access through a web browser and the PDAs issued to the SOM and GSN students. Also, during 2003, the Department established its second course, BID-510, Introduction to the Department, which organizes and teaches *MCB-501, Introduction to Computers for Bioinformatics Computer Skills* (established during 2002, with assistance from faculty and staff in the SOM Department of Preventive Medicine and Biometrics and the Learning Resource Center). The new course will be offered, during the 2004 Academic Year. BID also continues to support the implementation of a high performance research network at USU (*Internet2*). Due to an operational connection to *Internet2*, through the National Library of Medicine, BID hosted demonstrations from USU laboratories, during 2003.

National Capital Area Medical Simulation Center.

Just as the military has remained a driving force behind the evolution of flight simulation, the Uniformed Services University of the Health Sciences (USUHS) National Capital Area Medical Simulation Center, with its mission to establish a world-class, cutting-edge medical education facility, is definitively ahead of the curve in terms of the utilization of simulation to enhance medical education and readiness. The Center pushes medical simulation into the 21st Century.

- Military Medical Technology, *Locating the Cutting Edge*, Volume 5, Issue 5, 2001, page 32.

Background. In response to new technologies and increasing requirements for standardization in clinical assessment skills, coupled with a diminishing inpatient teaching base, United States medical educators have developed a variety of new training and testing tools (trauma and anesthesia simulators, interactive computer-based testing (CBT), distance learning, virtual reality applications, and clinical simulations using “standardized patient” actors (SPs). All of these innovations are being rapidly implemented throughout the United States and are being incorporated as new quality standards for medical education and testing. For example, the National Board of Medical Examiners scheduled the implementation of CBT in the United States Medical Licensing Examination (USMLE) for 1999; and, clinical testing utilizing standardized patients will be implemented as part of the USMLE Step 2 by 2005. Similar requirements are being discussed by the accrediting entities for advanced practice nurses.

These innovations in medical education conform to the 1995 DoD Medical Readiness Strategic Plan, which states: *The use of modern technological advances such as computer simulations and virtual reality has the potential to provide realistic training in battlefield techniques and procedures, and should be pursued to enhance medical readiness training.* In July of 1995, the Dean of the USU School of Medicine, and the Commander of the Walter Reed Army Medical Center (WRAMC) established a committee to plan for a model military medical simulation center for the: 1) development and use of military medicine databases for education and training; 2) simulation, teaching, and measurement of patient interviewing, physical examinations, and diagnostic skills; 3) instruction, assessment, and documentation of readiness skills; and, 4) focused pre-deployment training. The Associate Dean for Clinical Affairs, SOM, was appointed chair of the planning committee and designated to coordinate the project for the University.

Upon the determination of space and personnel requirements by the planning committee, a building on the WRAMC Annex at Forest Glen, Maryland, was identified and approved by the Commander of WRAMC as the location for the center. An initial design study, funded jointly by USU and WRAMC, was completed in September of 1996. In 1997, the concept was briefed to the Assistant Secretary of Defense for Health Affairs and the Surgeons General, during a meeting of the TRICARE Readiness Executive Committee (TREC), who referred it to the Defense Medical Readiness Training and Education Council (DMRTEC). Following a briefing on September 25, 1997, the DMRTEC approved the concept and recommended that USU program for funding. In 1998, the President of USU allocated funds for the renovation of the Forest Glen space and the purchase of equipment. The one hundred percent design

was completed on August 12, 1998. Funds for renovation, furniture, and security were obligated on September 30, 1998. Program development and the hiring of staff began late, in Fiscal Year 1998, and continued, throughout Fiscal Years 1999 and 2000. The construction, required for renovation, was completed, during 1999; in October of 1999, the simulation center began training and testing military physicians, nurses, and medical students. On April 21, 2000, the 11,000 square foot National Capital Area Medical Simulation Center (SIMCEN) was officially opened at the Walter Reed Army Medical Center Annex in Forest Glen, Maryland. ***The SIMCEN is the first single location to integrate the use of virtual-reality technology, computer-controlled mannequins, needle insertion simulators, interactive software applications and human simulated patients under one roof to undertake comprehensive medical educational scenarios.***

Educational Activities. During 2003, the SIMCEN was instrumental in introducing medical simulation technology in support of numerous and distinct medical education programs. ***Since October of 1999, the SIMCEN has supported 60 distinct educational activities: 18 - School of Medicine; 11 - Graduate School of Nursing; 15 - Graduate Medical Education; 9 - Operational Medicine; and, 7 - Research Training activities. These educational activities, in turn, supported over 19,698 student encounters with medical simulation.*** It is now estimated that each USU SOM student will utilize the medical simulation center on an average of 26 times, during the four years of medical school education (this number of encounters could well be *the gold standard* for student simulation encounters for all United States medical schools). At present, the SIMCEN expects to support a similar number of programs and student encounters, during 2004.

Since its establishment, the SIMCEN has conducted over 467 tours (51 foreign nations; 103 educational institutions - most of the Nation's 126 medical schools have already visited the SIMCEN; and, over 313 visits from military, professional, congressional, and private organizations). ***To date, the SIMCEN is currently serving as a template for more than 45 educational institutions that are attempting to employ similar simulation technology into their own medical education programs.*** As an example of the growing reputation of the SIMCEN, on February 21, 2001, the USU SIMCEN was included in the Discovery Channel Series, *The Nature of Things*. The segment of the program featuring the SIMCEN was entitled, *Surgeons of the Future*. To date, reports of the SIMCEN's activities and simulation capabilities have led to reports in newspapers and professional journals and in national television programs; some examples include: *The New York Times*; *GeoWissen*; *U.S. Medicine*; *Institute for Electrical and Electronic Engineers*; *American Forces Information Services*; *Military Medical Technology*; *Sea Power*; *Stripe*; *USU Quarterly*; and, television reports in: *Fox News*; *NBC Nightly News*; *The Discovery Channel*; and, *The Canadian Broadcasting Corporation*.

Multi-Simulation Techniques Under One Roof. While an increasing amount of professional health care training uses simulation techniques, the SIMCEN is unique among the limited simulation centers found at civilian medical schools, in the United States, because five state-of-the-art teaching components are included under one roof: 1) standardized patients (*patient actors*); 2) multi-media, interactive, clinical case presentations on LAN or web-based CD-ROMS; 3) virtual reality software applications; 4) medical simulators (computerized mannequin simulators and other medical simulators); and, 5) video-teleconferencing/distance education. It uses technology and actors posing as patients to teach students about situations that they may encounter as practitioners, but might not otherwise

experience while training in hospital wards. It also allows for a safe transition between simulations in the classroom and real-life situations in the clinic for learning procedural and surgical skills, and for the interaction with patients in sensitive or difficult situations. Another use of the SIMCEN is the instruction of readiness skills and focused pre-deployment training for wartime, peacekeeping, and humanitarian missions.

The SIMCEN is divided into four functional areas: the Administrative Area; the Clinical Skills Teaching and Assessment Laboratory; the Computer Laboratory; and, the Surgical Simulation Laboratory. Each distinct area can sustain educational activities on its own; and, when necessary, integrate the operations of the entire SIMCEN for a more comprehensive approach. All of the functional areas have been designed to maximize students' access to clinical experience in a state-of-the-art learning environment. The SIMCEN's current research activities include validating the educational efficacy of cutting-edge simulation technology. Some examples of the specialized simulation equipment currently being used include: 1) CathSim AccuTouch: Immersion Medical; 2) Vascular Anastomosis Simulator: Boston Dynamics, Inc.; 3) Bronchoscopy Simulator: Immersion Medical; 4) Laparoscopy Simulator: Immersion Medical/Surgical Science; 5) Ultrasound Simulator: MedSimEagle; 6) Human Patient Simulators: MedSimEagle; 7) SimMan Patient Simulator: Laerdal/Medical Plastics Laboratory; 8) Hand-Immersive Workstation: Cie-Med; 9) Head Mounted Display; 10) People-Shop Software: Boston Dynamics, Inc.; 11) Emergency Care Simulator: Medical Education Technologies, Inc.; 12) Diagnostic Peritoneal Lavage Simulator: Immersion Medical/USU/SIMCEN; 13) Pericardiocentesis Simulator: Immersion Medical/USU/SIMCEN; and, 14) Cricothyroidotomy Simulator: Reach-In, Inc./USU/SIMCEN. *(The last three simulators have been developed by the USU staff at the SIMCEN.)*

The Administrative Area. The Administrative Area serves as the hub for the SIMCEN; the area includes both the administrative offices as well as the Video Teleconference (VTC) Room. In addition to daily operational activities such as personnel, budgeting, and resource allocation, the Administrative Area houses the offices of the SIMCEN Director, the Director of Administration/Computer Laboratory, the Director of the Clinical Teaching and Assessment Laboratory, and the Secretary. The VTC Room is the SIMCEN's audio/video entry and exit point to the outside world. ***Equipped with state-of-the-art video teleconferencing equipment, any of the video signals, throughout the SIMCEN, can be routed through the VTC Room and sent to any connected site in the world.*** This capability allows individuals at remote sites to participate and to review many of the exercises that take place in the SIMCEN. The VTC Room is equipped with a *telecommuting* conference table, which allows up to twelve students, faculty, or visitors to connect their computer laptops to twelve local area network ports for high-speed Internet access. The table is also outfitted with sixteen headphone ports, allowing various audio exercises, which permit instructors and students to simultaneously utilize the same audio files for review and discussion. As a standard conference room, it is also equipped with a slide-to-video converter, document camera, and VCR.

The Clinical Skills Teaching and Assessment Laboratory. The Clinical Skills Teaching and Assessment Laboratory (CSTAL) is designed for teaching and evaluating students in the basic clinical skills of history-taking, physical examination, communication, and interpersonal skills. Here, ***encounters with simulated patients provide an ideal transition from the classroom to real patient contact. The CSTAL also prepares medical students for the United States Medical Licensing Examination (USMLE).***

The area is comprised of four sub-sections: the Orientation Room; the Clinical Examination Room area; the Monitoring Area; and, the Standardized Patient Lounge. The Orientation Room is used to brief the students. A ceiling-mounted, drop screen and LCD projector are used to display PowerPoint and/or video presentations for orientation, registration, and briefing students on specific event protocols. The students are registered for clinical events, through a log-in process, which tracks the students, throughout their activities at the SIMCEN.

The Clinical Examination Room Area consists of 12 examination rooms, which serve as the simulated clinical environment for the SIMCEN. There are ten typical (120 square feet) examination rooms and two large (220 square feet) rooms with hospital beds that can be used for inpatient and/or critical care simulation. The large rooms are also suited for trauma simulation and small group teaching events. ***In the Clinical Examination Area, students have the opportunity for encounters with live patients who simulate specific challenges in outpatient, inpatient, or critical care settings.*** Specifically, individuals, referred to as standardized patients, are hired and trained to simulate scripted clinical cases. These clinical cases may be simulated using performance, make-up, real conditions, or a combination of all three. Each Clinical Examination Room is equipped with two video cameras and microphones that permit encounters to be recorded for subsequent analysis and self-evaluation. Each room is equipped with a computer for the patient; a wall-mounted computer is also located outside of each room for students to use for documentation, before and after, the encounter. Typically, clinical examinations are designed following a directive to achieve specific educational goals. The Standardized Patient Trainers and the Medical Director collaborate with faculty members to create projects that meet stated educational goals.

The Monitoring Area is located at the center of the Clinical Examination Area and allows the Standardized Patient Trainer and faculty instructors to monitor the progress of the clinical examinations. A specialized video router controls 24 videotape decks that track the students as they move from room to room. A touch-screen control panel permits cameras to be positioned for optimal imaging. ***Faculty and students are able to view recorded tapes, as if they were in the room, allowing for more detailed observation and more dynamic feedback.*** The Monitoring Area is also used for training simulated patients.

The Standardized Patient Lounge is a staging area for simulated and standardized patients to prepare for, and to relax following, activities at the Center. This area is required as the *patient actors* often use theatrical make-up to simulate traumatic injuries or other conditions.

The Computer Laboratory. The Computer Laboratory has two sections: the Computer Laboratory itself and an adjacent Control Room. ***The Computer Laboratory has two primary functions. The first is to identify, develop, and/or use medical education software that contributes towards clinical or medical readiness skills. The second is to provide an environment in which computer-based, interactive clinical examinations can be administered.*** The Computer Laboratory consists of sixteen Internet accessible workstations that can run a variety of medical educational CD-ROMs. Eight overhead cameras and a one-way mirror between the Computer Laboratory and the Computer Control Room ensure that examinations are properly monitored, when the Computer Laboratory is being used for testing. Students use the Computer Laboratory to work with interactive software programs that may be linked to activities occurring in other functional areas of the SIMCEN. ***Additionally, the Computer Laboratory***

is designed to meet the specifications of the National Board of Medical Examiners (NBME) for a certified United States Medical Licensing Examination (USMLE). Although not currently certified, the Computer Laboratory assists students in preparing for the USMLE through the use of test preparatory software packages. Students and faculty can also use the computers to learn and evaluate various clinical and surgical skills (e.g., communication, history-taking, physical examinations, and cardiac auscultation) through interactive software applications. Many of the applications are offered using the local area network (LAN). Other applications are web based and accessed via the Internet. The Computer Laboratory also includes a separate Video Teleconferencing/Advance Distributive Learning (VTC/ACL) capability that serves as the audio/video entry and exit point to the outside world. Video signals from anywhere in the SIMCEN can also be viewed via a fiber optic connection and can be transmitted worldwide via VTC or the Internet.

The Computer Control Room is adjacent to the Computer Laboratory; it is the nerve center for the SIMCEN. All data, voice, and video signals are fed through the Control Room and can be routed to other areas in the SIMCEN, accordingly. The Control Room also houses several departmental servers that handle the current requirements of the Center. During testing, the Control Room operates as a monitoring station for instructors, allowing overall viewing of the Computer Laboratory through a one-way, mirrored window or specific viewing of the individual workstations from the overhead cameras.

The Surgical Simulation Laboratory. The Surgical Simulation Laboratory (SSL) uses virtual reality and a full-scale operating room mock-up to provide highly realistic scenarios for surgical training. This area is the first site approved to investigate teaching the surgical skills practicum for the Advanced Trauma Life Support Course through the use of computer-based simulators and plastic models rather than anesthetized animals or cadavers. ***During the past two years, the SIMCEN has conducted the Nation's first Advanced Trauma Life Support (ATLS) Course using virtual-reality based simulators, computer-controlled mannequins, and medical models instead of animals.*** The Operating Room is furnished to look and feel like a full-scale operating room. In addition to the typical Operating Room equipment, the room holds intravenous catheterization, bronchoscopy, endoscopy, and diagnostic ultrasound simulators designed to provide highly realistic scenarios for trauma, anesthesia, and surgical training. The Operating Room can be configured to match the conditions of a standard Operating Room, an Emergency Room, or an Intensive Care Unit. Here, a single human patient simulator responds to various drugs and interventions. Computer driven, the human patient simulator can be pre-programmed with patient characteristics or variables such as age, anatomy, and physiology factors depending upon the training event. Students are faced with real-life situations as the human simulator breathes out carbon dioxide, and breathes in various gases, depending upon the scripted clinical procedure. Beginning in 2000, when the second mannequin-based simulator was installed at the SIMCEN, through 2003, the two-day introduction to the SOM third-year surgical clerkship has included a day at the Surgical Simulation Laboratory operating room (OR) at the SIMCEN. Courses taught in the OR include an Introduction to Surgery Course for third-year SOM students, and an airway management workshop taught by the GSN Nurse Anesthesia faculty for providers at local Military Treatment Facilities. The OR is featured at the SIMCEN web site: (<http://simcen.usuhs.mil/Surgery/OR/index.html>).

The simulator has five palpable pulse areas and will exhibit the appropriate physiologic reactions in response to various intravenous or inhaled agents. ***Presently, there is a capability for 80 different drugs to be virtually administered by various computer microchips.*** The simulator responds to the type

and amount of these drugs according to instructor-determined, pre-programmed patient variables. In the Operating Room Control Room, a two-way headset and a one-way mirror into the Operating Room allow instructors to communicate with the Operating Room Coordinator. From the Control Room, the coordinator can change patient variables on the computer and even speak into a hidden microphone feed, on the simulated patient, in order to bring more realism to the scene.

The Virtual Reality Room, which is funded, in part, by the Association of Military Surgeons of the United States (AMSUS), develops computer-based surgical simulators and software applications with 3-D, haptic feedback features, designed to meet the educational objectives of USU. ***Two functional directives of the Virtual Reality Room are research that advances simulation procedures and harnessing the capabilities of existing technologies.*** In the Virtual Reality Room, state-of-the-art computer-based equipment enables students to view medical objects in two or three dimensions. *A haptic interface allows the computers to re-create the tactile sense, which permits users to touch, feel, manipulate, create, and alter simulated 3-D anatomic structures, in a virtual environment.* Here students can teach themselves, at their own pace; and, they can feel comfortable about making mistakes, as well as, repeating an exercise. The Virtual Reality Room is equipped with simulators for Vascular Anastomosis, Pericardiocentesis, a Diagnostic Peritoneal Lavage Unit, and a hand-immersive environment for on-going research. Both the Pericardiocentesis and Diagnostic Peritoneal Lavage Simulators were developed in the Virtual Reality Room. These two simulators are the first of their kind; and, they are unique to the SIMCEN. During 2003, **David C. Wherry, M.D., Professor, USU SOM Department of Surgery**, conducted 29 Ultrasound Courses, training 431 students. Also, during the past year, a total of 164 third-year students benefited from the resources of the Surgical Simulation Center. The facility was also used to conduct oral boards for 100 residents, under the direction of **Colonel Mark W. Bowyer, USAF, MC, FACS, Associate Professor, USU SOM Department of Surgery.**

Examples of Recent Achievements. In addition to participating in the numerous educational activities enumerated above and managing the tours and collaboration to assist other medical schools in developing similar simulation capabilities, the faculty and staff at the SIMCEN have undertaken the following endeavors, during 2004.

Funded Projects:

- A \$200,000 contract with the Telemedicine and Advanced Technology Research Center, United States Army Medical Research and Materiel Command, to develop a *Virtual Reality Cricothyroidotomy Simulator for Advanced Trauma and Combat Casualty Training*; and, a \$49,000 contract to develop a *Validation Study of the VIRGIL Trauma Mannequin*; and,

- A \$20,000 contract with the Eastern Virginia Medical College (EVMC) and Old Dominion University (ODU) to develop a *Validation Study of a Catheter Insertion Project* conducted by EVMC/ODU.

Collaboration With:

- The Department of Psychiatry at the Walter Reed Army Medical Center in a Telemedicine and Advanced Technology Research Center, United States Army Medical Research and Materiel Command funded project, *Comparing Provider Recall, Therapeutic Alliance and Other Interpersonal Factors between Video Teleconferencing and Face-to-Face Clinical Encounters*;
- The Medical and Clinical Psychology Department at the USU SOM in a National Institutes of Health funded project, *USU Center for Health Disparity Research and Education*;
- The Departments of Psychiatry at the Tripler Army Medical Center (TAMC) and USU to conduct *Video Teleconferencing Clinical Encounters between Standardized Patients at USU and Undergraduate Psychiatry Clerics Located at TAMC*, and the TAMC Department of Internal Medicine to demonstrate *The Value of ACCESS GRID INTERNET2 Capabilities in Medical Education*;
- The Continuity Clinic of the Family Medicine Department at the Malcolm Grow Medical Center, piloted to use *Unannounced Standardized Patients in a Clinical Setting*;
- The Clerkship Directors at USU and Emory University to sponsor a post-course entitled, *Objective Structured Clinical Examinations and Standardized Patients in Medical Education: Getting Started and Expanding Roles for Physicians*;
- The USU SOM Department of Pediatrics in a Health Research Services Administration funded project to *Enhance Clerkship Education Modalities in Support of Developing High Stakes Clinical Assessment Cases*;
- The Telemedicine and Advanced Technology Research Center, United States Army Medical Research and Materiel Command funded project to *Validate Two Advanced Urethroscopy Simulation Workstations*, developed separately by Immersion Medical and Symbionix;
- The Research Triangle Institute, of North Carolina, in an Office of the Secretary of Defense, Health Affairs, funded project to develop *Virtual Trauma Training Scenarios for Primary Care Physicians and Physician Assistants*;
- The ICM 2, USU SOM Course Director to *Develop an Introduction of Physical Exam Teaching Associates Course Where Standardized Patients Are Trained in Specific Anatomical/Physiological (i.e., abdominal, neurological, musculo-skeletal, etc.) Aspects of the Physician Exam Process*;
- The USU SOM Department of Medicine and the New York Academy of Medicine, Association of American Medical Colleges (LCME) project for *Enhancing Education for the Clinical Transition*; and,
- The USU Graduate School of Nursing and the USU SOM Department of Obstetrics and Gynecology on a *Genetics Education Counseling Course for Family Nurse Practitioner Trainees with Standardized Patients*.

Institutional Agreements. An institutional agreement is also in development to complete a Collaborative Research and Development Agreement (CRADA) with the Research Triangle Institute at North Carolina; a non-disclosure agreement has already been established, which addresses intellectual property protection requirements. Also, coordination has been initiated to complete a memorandum of understanding with the RDE Command (formerly STRICOM) to share source code data on simulation products developed under RDE Command contracts. And, a memorandum of understanding is in development with the Universities of New Mexico and Hawaii to share information technology data and capabilities developed through the TeleMedicine Outreach Community Health (TOUCH) Project; a non-disclosure agreement is already in place addressing intellectual property protection requirements.

Future Initiatives. The SIMCEN is currently planning for the development of a Computer-Aided Virtual Environment (CAVE). The CAVE is an immersive, virtual reality environment suitable for simulating mass casualty, triage and/or bio-chemical training scenarios. Students would be physically immersed in a virtual environment with patients, which can be either virtual, live, or high fidelity computer-driven human patient simulators. Students would be exposed to a variety of scenarios, and equally important, participate in a scenario where they can respond as an individual provider or as a member of a medical team. Further, the training scenarios could be linked via *Internet2* to other geographic locations so that other responders can participate in the same training scenario. The CAVE would be established in adjacent space to the SIMCEN. USU has already obligated funding to plan, design, and renovate the adjacent space; the Navy Public Work Center is coordinating with the USU Facilities Division and the SIMCEN to manage these efforts. SIMCEN staff have also collaborated with the University of Michigan and the Army Research Laboratory in Aberdeen, Maryland; as both have on-going CAVE projects. The SIMCEN is also collaborating with the University of New Mexico and the University of Hawaii, the RDE Command, and the Research Triangle Institute to acquire existing software developed under government contract that will provide the SIMCEN with 3-D landscape and medical content suitable for use in the CAVE.

Research Administration.

RESEARCH: To be a leader in basic, clinical, and health services research to improve health care, to protect, sustain and enhance the fighting force and secure public health.

- Goal 3, RESEARCH, USU Strategic Plan, 2003.

Background. The Office of the Vice President for Research was established, in 1995, to facilitate, promote, and oversee the research activities at USU. The position of the Vice President for Research evolved through recommendations from the USU faculty. Following an extensive search, **Ruth Ellen Bulger, Ph.D., was selected as the first Vice President for Research and was appointed in March of 1996**; she served in that position until March of 2000, when she resigned as Vice President to focus on teaching and her many other professional commitments. *Michael N. Sheridan, Ph.D., Professor of Anatomy and Associate Dean for Graduate Education, subsequently served as the Acting Vice President for Research, while a national search was conducted.* **Steven Kaminsky, Ph.D., was selected as the second Vice President for Research and assumed the position in March of 2001.**

The Office of Research (REA) currently consists of fifteen full-time staff (fourteen civilians and one Army officer) who serve under the Vice President for Research. The Office of Research reviews, monitors, and coordinates approvals for all matters dealing with research at the University, to include the following: identification of potential funding sources; pre-award review and administration; grant awards and receipts; post-award administration; administration of the human research program, to include review and approval by the University's Institutional Review Board (IRB); and, monitoring of all regulatory compliance requirements.

The Office of Research provides service to three communities: the University as an institution; USU faculty and student investigators; and, the more than 100 funding entities that support research at the University. The REA staff operates the intramural grant program and provides administrative support for the SOM Research Merit Review Committee, which conducts peer review of all faculty applications for intramural funding. During 2003, the USU Intramural Program was funded at \$2.78 million for USU student and faculty researchers. The intramural portfolio consisted of 69 protocols with special military interest, 40 awards for clinical research, and three projects in areas of educational research. Standard USU awards for militarily relevant research were typically funded at 90 percent of the applicant's budget request; clinical research awards were usually supported at 90 percent. As part of the University's on-going effort to encourage young faculty, all new assistant professors, who received starter awards, were funded at 100 percent of their budget requests. The 2003 USU student research programs supported the work of 5 medical students, 10 students in the Graduate School of Nursing, 42 candidates in the Master of Public Health Program, and 15 candidates in the Ph.D. or Dr.P.H. Graduate Education Programs. Student applications are reviewed by a faculty committee in each student's area of study and by the appropriate Dean.

The Office of Research similarly oversees nine multi-site, Congressionally-funded research programs, with FY2003 funding totaling \$51,993,000: the TriService Nursing Research Program; the Center for Prostate Disease Research; the Defense Brain and Spinal Cord Injury Program; the Coronary

Artery & Prostate Disease Reversal Program; the Clinical Breast Care Program; the Post-Polio Research Program; Comprehensive Neuroscience; the United States Military Cancer Institute; and, the newly established program for Military Complementary & Alternative Medicine. Together, these programs support more than 150 individual research projects conducted at USU and elsewhere.

Extramurally funded research at USU was funded at a total of \$43,281,850, during 2003, and included 198 projects supported by Federal organizations such as the National Institutes of Health (NIH), the National Science Foundation (NSF), the Department of Energy (DOE), the United States Army Medical Research and Materiel Command (MRMC), and the Office of Naval Research (ONR). These investigations explored a variety of scientific areas, including basic biomedical questions central to the mission of the Military Health System: the mechanisms, transmission, and control of a wide range of infectious diseases; a variety of crucial topics in combat casualty care, operational medicine, and health education and promotion; Defense women's health issues; and, the development of new methods for the diagnosis and treatment of medical problems faced by the United States military and their dependents. ***Thus, the total of the USU Intramural, Extramural, and Congressional Research Programs was approximately \$98 million in 2003, with a total of over 460 active projects and hundreds of resulting publications.*** (See Appendix C for examples of the achievements and recognition awarded to individual USU researchers.)

USU Researchers Investigate Diseases of Special Interest to the Military. A wide array of research protocols at USU investigate specific disease threats faced by the Military Health System's in its efforts for the sustainment of the Armed Forces, during peacetime and deployment under combat conditions. These projects all supported the essential military mission by advancing the understanding of both the transmission and the internal mechanisms of a spectrum of pernicious and/or common diseases that may be faced by warfighters. These research projects are expected to provide equally important applications in the growing effort devoted to homeland defense; the understanding gleaned by USU researchers will open avenues to better control, diagnosis, and treat natural and man-made biological threats, both at home and abroad. For example, malaria is endemic in many areas where the military deploys its fighting forces; technological advances conducted by USU researchers have made it possible to predict mosquito population levels and transmission risk for a range of mosquito-borne diseases such as malaria, even within precise areas and timeframes. By using satellite imaging and remote sensing devices, researchers assist in predicting high-risk locations for the occurrence of malaria and similar diseases. These predictions focus disease control operations and conserve scarce resources as well as human capital. Infectious diseases studied at USU have included, or continue to include, the following: malaria; Venezuela equine encephalitis (VEE); leishmaniasis; E. coli, H. pylori; and, bartonellosis. Examples of additional disease-related research have included: identification of previously unknown bacterial virulence genes; and, analysis of the genesis and pathology of various types of virus.

USU Research and Combat Casualty Care. Research conducted by USU faculty in the area of combat casualty care has enhanced the provision of rapid diagnostic methods and treatments that ensure military readiness, excellent care for deployed forces, and the rapid return of the injured and sick to active duty. Protocols, dealing with combat casualty care, have focused on the following areas/examples: the exploration of the pain-control mechanisms that underlie established treatments, such as morphine; the provision of groundwork for effective strategies to limit nerve damage and to encourage

nerve regeneration; and, the identification of possible causes of life-threatening complications resulting from the combination of exertion and injury that are common under heavy battle conditions.

USU Research Strengthens Military Operational Medicine. USU researchers, in the area of operational medicine, advanced the understanding of, and the ability to manipulate, the physiological mechanisms of stress and immunity; human sleep and seasonal cycles; and, the neurological changes underlying short- and long-term memory. These discoveries should: enable warfighters to stay awake longer with fewer detriments to performance (this USU research was recognized by *Science* as one of the top ten scientific breakthroughs of 2002, and is discussed in Section II of the Journal); lead to better strategies for enhancing and preserving memory and reasoning capabilities under battlefield conditions; help the Uniformed Services and Veterans Affairs to understand, and ultimately prevent and treat, neuropsychiatric illnesses such as depression and post-traumatic stress disorder; and, assist deployed troops and their families to better prepare for, and contend with, the significant, common stressors of military operations.

Support for the Graduate Student Colloquium and USU Research Day. The Office of Research also provides annual coordination and support for the Graduate Student Colloquium and the Faculty Senate Research Day. The 10th Annual Faculty Senate Research Day and the Graduate Student Colloquium were held on the USU campus on May 14-15, 2003. This year's theme was *From Bench to Bedside and Battlefield: Translational Research at the Nation's Medical School*. The two-day event brought together researchers from USU, the National Naval Medical Center, the Walter Reed Army Medical Center, the Armed Forces Institute of Pathology, the National Institutes of Health, the Howard Hughes Medical Institute, the Washington Hospital Center, and the Centers for Disease Control and Prevention, as well as other prominent universities and hospitals. **Elias Zerhouni, M.D., Director, National Institutes of Health**, delivered the Plenary Lecture as a keynote speaker; and, **John D. Gearhart, Ph.D., Developmental Genetics Laboratory, Johns Hopkins University**, delivered the *Bullard Lecture*. The topics, of the workshop and symposia presented on May 15th, addressed: new requirements for research conducted under the newly enacted Health Insurance Portability and Accountability Act (HIPAA); clinical and basic research in brain injury; emerging techniques for proteomics; hemorrhage and associated biological responses; new imaging techniques for clinical and basic science research; recent research regarding obesity and nutrition; and, career opportunities for graduate students.

Enhancement of Administrative Services. During 2003, REA extended its regular meetings with the Research Administrators from all of the USU departments, to include a monthly request that each Research Administrator provide a list of the research applications likely to be submitted within the immediate timeframe. Compiling this monthly list has helped REA, department support staff, and faculty investigators coordinate their efforts to submit the best possible applications. The REA staff and Research Administrators continue to meet regularly to: identify and resolve problems; examine the processes for the submission, review, and administration of grant applications; and, strengthen their working relationships. REA staff also meets, at least monthly, with the Sponsored Project Office of the Henry M. Jackson Foundation for the Advancement of Military Medicine, which provides administrative services for more than 80 percent of USU's extramurally funded projects.

Since 2001, the Vice President for Research has conducted a series of weekly workshops that provide sustained, focused instruction and peer critiques for junior and mid-career faculty engaged in writing applications for extramural funding. Workshop sessions address the specific skills and expertise required to complete each section of the typical grant application, to include: writing the abstract for the grant proposal; summarizing the scientific background for the area of interest and proposed approach; developing the hypotheses and specific aims; presenting preliminary results; outlining experimental design and methodology; and, planing an appropriate statistical analysis. Four such workshops were conducted in 2003, to include a special series for post-doctoral fellows.

The REA Home Page. The REA home page, <www.usuhs.mil/research>, supplies pertinent, up-to-date, user-friendly information on both intramural and extramural grant opportunities, as well as, the capability to download a wide range of application and insurance forms. The Research Development Program now provides access to *ResearchResearch*, a database listing hundreds of funding opportunities available worldwide to faculty, post-doctoral fellows, clinical fellows, and students. In addition, *ResearchResearch* includes tips on grantsmanship, from matching research interests with a wide range of appropriate funding sources, to writing more successful applications.

Institutional Review Board. The Program for the Protection of Human Participants in Research and the USU Institutional Review Board (IRB) jointly ensure the protection of human volunteers, who participate in research projects at USU and its affiliates, from research risks. The Program's administrative staff, which functions as a part of the Office of Research, reviews each protocol with human subjects that is conducted at the University or by a member of the USU faculty or student body to ensure that:

- The research complies with the regulations and standards of DoD and other Federal bodies, as applicable;
- Potential risks to the subjects are minimized by the research design and do not outweigh the actual benefits of participation;
- Appropriate processes for obtaining informed consent from potential subjects are in place, adequate to the backgrounds of the volunteer population as well as the research design, not coercive, and respectful of the needs of the individual volunteers; and,
- The documents produced during the consent process and the conduct of the research protocol are maintained in accordance with standard scientific practice and Federal regulations.

Each research project, following staff review and recommendations, is presented to the full IRB at its monthly meeting. In 2003, the IRB reviewed and approved the following: 171 initial proposals for human subject research; 169 amendments to protocols already underway; and, 230 annual or semi-annual reviews of continuing projects. A second IRB coordinator was added to assist with the growing number of reviews and approvals, particularly as required for the Congressional programs overseen by USU.

The IRB meets at least once a month, with additional, *ad-hoc* meetings, as required, over the course of each year. It is composed of 15 voting members, including six physicians, one basic scientist,

two social/behavioral scientists, one nurse scientist, the USU Chaplain, the SOM Commandant, an enlisted soldier, and two other representatives from the non-scientific USU community. Twelve members are drawn from the USU faculty and staff; two are employed by NIH; and, one practices at WRAMC. Three *ex officio*, non-voting members provide coordination and staffing and attend each meeting: the IRB's Executive Secretary; the Assistant Vice President for Research; and, a member of the USU Office of the General Counsel.

A separate Institutional Review Board for the United States Military Cancer Institute (USMCI), formally approved on January 14, 2002, continues to develop as the Institute's protocols acquire scientific approval at the member institutions. The USMCI IRB draws its members from the University and its affiliated medical centers: the National Naval Medical Center; the Walter Reed Army Medical Center; the Armed Forces Radiobiology Research Institute; and, the Malcolm Grow Medical Center. The USMCI IRB ensures that its member institutions and their physicians, dentists, nurses, and other health care providers pursue oncology research in compliance with Federal regulations and accepted ethical standards of scientific conduct. Protocols conducted under the auspices of the USMCI are designed not only to improve the quality of patient care, but also to contribute to better staff education and training.

Positive Reviews of the USU IRB Program. A review of the USU IRB Program was conducted during July of 1997, by the Director, Scientific Activities, Office of the Assistant Secretary of Defense for Health Affairs. *This review found no significant deficiencies* and the REA staff has since been expanded to accommodate the growing number of protocols requiring IRB review. In addition, the Food and Drug Administration (FDA) has cognizance over Federal IRB Programs where research is conducted with investigational new drugs and devices. Because some USU research falls into this category, the FDA has the authority to audit the entire USU program. On March 22 and 23, 1999, an FDA inspector conducted a two-day audit of the USU Human Use Program and the USU IRB. The audit included a review of IRB minutes from 1997, 1998, and 1999, plus a random sampling of the IRB files on protocols with a greater than minimal risk to human subjects. *The USU IRB Program was found to be in full compliance with the governing regulations (Title 21, Code of Federal Regulations, Parts 50 and 56) with no need of corrective action by the Division of Scientific Investigations, Office of Medical Policy, Center for Drug Evaluation and Research of the FDA.* During 2001, in addition to the previously awarded Assurance of Compliance from DoD, USU also obtained a Federal-Wide Assurance from the Department of Health and Human Services (HHS). Each assurance sets out USU's institutional responsibilities in the protection of human subjects to include: 1) standards for the initial and continuing review of research protocols; 2) requirements for the prompt reporting of information required by each Federal agency, to include the suspension or termination of any study due to non-compliance with regulations or unexpected, serious harm to a research volunteer; and, 3) guidelines for the appropriate training and educational requirements for IRB members, USU investigators and administrative staff. *The audits conducted by the Director of Scientific Activities for the Office of Health Affairs in July of 1997, and the FDA in March of 1999, combined with the Assurance of Compliance obtained from DoD and the Federal-Wide Assurance from HHS during 2001, have validated the outstanding support rendered by the USU Human Research Protection Program and the USU IRB.*

The 10th Faculty Senate Research Day and the 2003 Graduate Student Colloquium. The 10th Annual Faculty Senate Research Day and the Graduate Student Colloquium were held on the USU campus on May 14-15, 2003. This year's theme was *From Bench to Bedside and Battlefield: Translational Research at the Nation's Medical School*. This theme focused on an important area in biomedical research - the need to bridge the gaps between scientific knowledge and clinical practice - and also reflected USU's special role in both civilian and military biomedical research. The two-day event brought approximately 250 individuals to the USU campus, including researchers from affiliates such as the National Naval Medical Center, the Walter Reed Army Medical Center, the Armed Forces Institute of Pathology, the National Institutes of Health, the Howard Hughes Medical Institute, the Washington Hospital Center, and the Centers for Disease Control and Prevention, as well as other prominent universities and hospitals. **Elias Zerhouni, M.D., Director, National Institutes of Health**, delivered the Plenary Lecture.

On May 14th, two symposia were presented: *New Confidentiality and Privacy Regulatory Requirements in Human Research: Use of Tissues, Tissue Banking, Databases, Consent Forms and Everything Else* (chaired by **Richard L. Levine, Ph.D., USU Assistant Vice President for Research, and presented by Eric Marks, M.D., Professor, USU SOM Department of Medicine, and Associate Dean for Faculty Affairs**); and, *Brain Injury - The Disease Amongst Us*, which consisted of four presentations by accomplished individuals from USU (**Denes V. Agoston, M.D., Ph.D., Associate Professor, USU SOM Department of Anatomy, Physiology, and Genetics**, and **Geoffrey Ling, M.D., Ph.D., LTC, MC, USA, Professor, USU SOM Department of Neurology**) and the National Institutes of Health (**Jordan Grafman, Ph.D., National Institute of Neurological Disorders and Stroke**, and **John Hallenbeck, M.D., National Institute of Neurological Disorders and Stroke**). The topics, of the symposia presented on May 15th (Emerging Proteomics: Techniques and Applications; Biological Response to Hemorrhage: Recent Advances on the Bench and the Battlefield; Forefront of Imaging Techniques in Clinical and Basic Science; and, The Obesity Epidemic: Scope and Clinical Approaches) were selected to highlight areas in military and civilian medicine that present particular challenges for translational research. In addition to 35 oral presentations, there were more than 150 poster presentations featuring the research work of the USU community.

In 1980, the Graduate Student Colloquium was established to promote scholarly interchange between graduate students and the academic community at USU and to recognize the research achievements of the USU graduate students. The 2003 Graduate Student Colloquium featured a Career Development Workshop on opportunities for graduate students, symposia, and the *John W. Bullard Lecture*. Six oral presentations by graduate students were followed by *The 2003 John W. Bullard Lecture*, which was presented by **John D. Gearhart, Ph.D., Developmental Genetics Laboratory, Johns Hopkins University**; the title of his presentation was *Human Embryonic Germ Cells: Differentiation and Transplantation*.

USU Center for Laboratory Animal Medicine. The Center for Laboratory Animal Medicine (LAM) is responsible for the humane care, use, and welfare of research animals, in accordance with: all Federal and Department of Defense (DoD) regulations and guidelines; the *Guide for the Care and Use of Laboratory Animals*; as well as, USU Instruction 3204, *The Use of Animals in the USUHS*.

On November 5, 2002, the USU Center for Laboratory Animal Medicine received confirmation of continued accreditation from the Council on Accreditation of the Association for the Assessment and Accreditation of Laboratory Animal Care, International (AAALAC). AAALAC is a private, non-profit organization that promotes the humane treatment of animals in science through a voluntary accreditation program. AAALAC's voluntary accreditation process is a way in which animal research programs demonstrate that, they not only meet the minimum standards required by law, but are exceeding those standards to achieve excellence in animal care and use.

The Council on Accreditation of the AAALAC has reviewed the report of the recent site visit to USUHS... The Council commends you and your staff for providing and maintaining a high quality program of laboratory animal care and use. Especially noteworthy were the commitment and dedication of personnel at all levels, the Institutional Animal Care and Use Committee's program oversight and monitoring, the outstanding husbandry practices, and the well maintained facilities. In addition, development of the rodent breeding database and efforts focused on environmental enrichment were commendable. The Council is pleased to inform you that the program conforms with AAALAC International standards as set forth by the Guide for the Care and Use of Laboratory Animals, NRC, 1996. Therefore, FULL ACCREDITATION shall continue.

Background. The Center for LAM is divided into four Divisions: the Animal Husbandry Division; the Veterinary Medicine Division; the Veterinary Surgery Division; and, the Veterinary Pathology Division. The LAM staff includes three military veterinarians, nine United States Army Animal Care Technicians, five United States Navy Surgical Technologists, three United States Navy Medical Laboratory Technicians, and a civilian professional, technical, and support staff of eighteen individuals.

In July of 2003, Heating, Ventilation and Air Conditioning (HVAC) renovations began in the main side of the Central Animal Facility (CAF). For the remainder of 2003, laboratory animals were housed on the G-200 side of the CAF. During this period, animal census was down by approximately 20 percent; the cagewash area was down and cages were washed by hand (approximately 500 cages per week; and, all animal surgeries were conducted in the Multidiscipline Laboratories and in the Department of Surgery's surgical suite. Despite the inconvenience and the significantly increased workload caused by the HVAC renovation project, the newly installed air handlers and duct work, now ensure a well-balanced and clean environment for the animals in the LAM areas; without the dedicated efforts of the LAM staff, the renovation would not have been possible.

During 2003, while undergoing the HVAC renovation project, the LAM Veterinary Surgery Division (VSD) provided surgical training support to qualified USU faculty, supporting both the teaching mission and research protocols. The VSD is composed of two large teaching laboratories and two operating rooms used chiefly for research protocols involving non-rodent species. These areas are equipped with modern surgical and surgical support equipment, which allows comprehensive care and monitoring. Support areas include separate instrument cleaning and sterilization rooms, a surgeon's scrub area, and a large multi-purpose room used for both pre-operative procedures and post-operative recovery. Also, co-located with the surgical section are radiology support services that include a human hospital GE

Advantx X-ray unit equipped with fluoroscopy. This equipment allows advanced diagnostic capabilities for the central animal facility and serves as a tremendous resource for USU investigators. In November of 2002, a water-softening system was installed in the LAM cage washing area; this system assists in decreasing the build-up of harmful mineral deposits in the cage washing machinery, thus extending the *life* of this critical equipment. In addition, the old flooring was also removed in the G200 area, which houses the large animal species, and was replaced with epoxy-resin flooring; this allows for enhanced sanitation practices and ensures a safe and comfortable environment for the research animals.

A variety of significant teaching laboratories were conducted, during 2003, by the VSD. These laboratories provided USU students with invaluable experience working with biological tissue; these laboratories were frequently reported by the medical students to be one of their most valuable learning experiences. The teaching laboratories provide the students with the opportunity to gain experience in basic surgical skills and the proper handling of tissue, among other critical techniques. These skills help the students to more effectively function during their future residencies and in the practice of medicine. Also, in the event that as military physicians they are deployed under battlefield conditions, the familiarity and heightened skill level afforded by the teaching laboratories will prove to be of significant value. Students are exposed to a combination of training techniques prior to specific training on the use of animals; the ever-increasing use of computer simulation and mechanical surgical simulation devices complements the students' surgical training experiences and also reduces the number of animals required to provide the necessary training.

Navy corpsmen staff the VSD; all are trained human surgical technicians, which enables a solid professional relationship between veterinary surgery staff members, surgeons, and students. The corpsmen also contribute significant preoperative and monitoring skills to all of the teaching laboratories of the Multidiscipline Laboratories. An assignment to USU has been found to tremendously broaden the experience of the corpsmen and it affords a unique training opportunity through the combination of human surgical skills with current veterinary technology.

During 2003, the Veterinary Medicine Division (VMD) was responsible for: veterinary medical diagnosis; the treatment and care of all USU animals; initiating, implementing, and conducting essential processes for monitoring animal health status and animal quarantine programs; and, providing animal handling and care assistance to USU investigators. In meeting its mission, the VMD monitors on-going projects for compliance with USU guidelines, participates in pre- and post-surgical preparation and care of laboratory animals, and provides a training program for VMD personnel. The VMD also prepares and presents training courses in the following: laboratory animal research techniques; animal care comparative medicine; zoonotic diseases; and, the inventory and procurement of veterinary equipment. Significantly, the VMD personnel initiate and/or participate only in research projects that have been approved following established academic guidelines.

The Veterinary Pathology Division (VPD) is responsible for: operating the University's centralized diagnostic laboratories; providing gross anatomic, histopathologic, and clinical pathologic laboratory support for LAM and USU investigators from both the basic and clinical science SOM departments; ensuring consultation services for research personnel in reference to the diagnosis of infectious and/or zoonotic disease; and, the selection of outside laboratories required for specialized tests. During 2003, the VPD also interpreted laboratory results and made recommendations for further testing, if indicated, and informed researchers of abnormal results, which could have impacted the outcome of their research.

The VPD participates in, and supports, the USU teaching programs for medical and graduate students, research technicians, and animal care technicians. To more effectively accomplish its mission, the VPD is subdivided into a Histopathology Section and a Clinical Pathology Section; the VPD laboratory is certified by the College of American Pathologists (CAP).

The Animal Husbandry Division (AHD) is responsible for providing animal caretaking services within the LAM and USU. During 2003, the AHD performed daily feeding, watering, and cage changing, to include animal care on weekends and holidays. The AHD personnel submit and follow up on facility and equipment work orders; and, they are responsible for daily monitoring, and ensuring the proper functioning of, the sterilization, sanitization, refrigeration, HVAC, and cleaning equipment. Additional equipment operated and maintained by the AHD include: the Microisolator Caging Systems, Laminar Flow Racks, Thoren Units, and Horsfal Isolation Units. The AHD personnel are also responsible for the following: animal ordering, tracking (to include animal census or inventory), and housing of animals, upon receipt; ordering of feed, bedding, caging and caging accessories; observing the status of animals and facilities while performing husbandry procedures; and, maintaining personal protective equipment and chemicals, as appropriate, for meeting the animal care mission.

USU Barrier Facility. A rodent barrier facility occupying approximately 2,558 square feet within the USU Central Animal Facility is capable of housing 6,000 mice. This resource was conceived and developed by the Vice President for Teaching and Research Support and veterinarians from the Center for Laboratory Animal Management, along with input from the USU Institutional Animal Care and Use Committee, and interested USU investigators. The facility, opened during 1999, is equipped to accommodate the needs of USU investigators whose protocols require that research animals (rodents) be kept under ultra clean conditions. Ultra clean conditions are necessary to reduce the chance of pathogen exposure, which could have devastating effects on research goals and potentially result in the waste of animal lives, investigators' time, and related resources. The facility is also intended for the housing of transgenic mice (mice that have been altered genetically to simulate disease states or modified biochemical conditions).

The Barrier Facility includes one full-time technician who is specifically trained in transgenic techniques and is capable of producing transgenic animals; the technician daily monitors animals housed within the barrier and is responsible for: 1) written entry procedures (which include the use of personal protective equipment) and the restriction of non-essential personnel; and, 2) the conduction of training on barrier-housed animal handling procedures. Equipment acquisitions in support of the barrier include ten additional ventilated cage racks and a computerized, controlled-rate freezer for the cryopreservation of crucial reproductive elements (mouse embryos, eggs, and sperm). The controlled-rate freezer is a state-of-the-art piece of equipment that allows the long-term storage of frozen mouse embryos. Once a transgenic or other valuable mouse line is developed, the cryopreservation technique keeps that line viable without having to house large numbers of breeding animals to maintain the line. When a particular mouse line is required, the embryos are thawed, implanted, and normal breeding of the line continues. This saves a tremendous amount of space and resources that would normally be required for maintaining a breeding colony. *The capability to produce transgenic animals for investigators is a research tool that is unique to other Department of Defense research facilities in the National Capital Region.*

The barrier is equipped with a limited access card key system and consists of four sections: an autoclave area with two physically separate rooms; five clean animal holding rooms; one procedure room; a laboratory for transgenic surgical and manipulative procedures; and, a storage area. One of the animal holding rooms can be used as a quarantine room for animals awaiting final clearance of health status. All barrier mice are housed in specially ventilated cage racks, such that the animals are only exposed to highly filtered (sterile) air. All supplies (caging, bedding, food, and water) are sterilized prior to entry or use in the barrier. The transfer of mice from soiled caging to clean cages is performed in a positive pressure laminar flow cabinet, which further ensures protection from pathogenic agents. The USU barrier has the distinction of being free of rodent diseases due to the significant efforts of the USU staff.

Center for Environmental Health and Occupational Safety. The mission of the USU Center for Environmental Health and Occupational Safety (EHS) is to provide a safe and healthful environment for all students, faculty, staff, and visitors. Education in the health sciences and research involves the purposeful and safe use of hazardous materials, including chemical, biological, and radiological agents. Such work requires the combined cooperation and dedicated efforts of a host of multidisciplinary educators, researchers, and the appropriate support staff to safely ensure mission accomplishment. The Center for EHS continuously fosters safety, health, and environmental awareness in, and around, the USU community through essential preparation, prevention, and implementation of protective measures commensurate with the work to be performed. The Center is composed of three divisions: the Occupational Medicine Division; the Radiation Safety Division; and, the Industrial Hygiene, Safety and Environment Division. In May of 2003, a new Director of EHS reported for duty and continues USU's on-going initiative to improve its health, safety, and environmental programs. The EHS commenced significant initiatives, during 2003, to improve the overall health and safety climate of USU, as reflected in the Divisional reports, which follow.

Radiation Safety Division. A number of initiatives were completed, in 2003, for enhancing radiation safety services. A standardized Radiation Safety Binder and accompanying CD-ROM, containing updated procedures, forms, permits, safety information, and a location for storing data collected in the laboratories, were provided to each USU research laboratory, as appropriate. Initial Radiation Safety Training, with additional annual refresher training sessions, were customized and implemented to assist the Principal Investigators. A special training package was also developed for those researchers, not as yet rated as Principal Investigators, but who are approved to use radioactive material. Radioactive waste containers stored in the laboratories were secured, throughout the University, ensuring on-going compliance with Nuclear Regulatory Commission recommendations. The newly established Laser Safety Committee completed its first year, as a fully functional unit. This committee consists of representatives from the major laser users at USU and the EHS staff; it is designed to ensure that all guidelines, rules, and regulations regarding lasers are adhered to.

Occupational Medicine Division. This Division conducts Medical Surveillance and other Occupational Health Programs in a variety of areas including animal care, pregnancy, hearing

conservation, laser eye safety, immunizations for laboratory and health care workers, treating and tracking occupational injuries, ergonomics, blood borne pathogens, wellness programs, and biological safety. The Occupational Medicine Division has implemented several improvements in procedures for reporting and tracking health and safety issues across all surveillance programs. These improvements have resulted in streamlined data collection and retrieval and tracking abilities for use in health and safety analyses. Enhanced information collection procedures regarding patient input, patient interview, medical evaluation, and industrial hygiene evaluation were also implemented.

Regarding biological safety, the Center for EHS is responsible for managing the Center for Disease Control (CDC) Select Agent Registration Program at USU. This essential program provides special attention to security and additional protective safety measures for hazardous agents, as determined by the CDC. The Select Agent Program regulations changed, during 2003, requiring extensive improvements in procedures involving: facility documentation and inspection; security plans; specialized training programs; Federal Bureau of Investigation (FBI) background checks on participating personnel; procedures for ordering, receipt and inventory of select agents; and, emergency plans. In coordination with the USU Security, Facility, and Logistics Divisions, and the Chair, SOM Department of Microbiology and Immunology, EHS implemented all procedural changes. In 2003, the CDC and a DoD security team reviewed the USU Select Agent Program, with highly positive results.

Industrial Hygiene, Safety and Environment Division. This Division provides essential industrial hygiene and laboratory safety support to approximately 1,700 USU faculty, staff and students, with approximately 300 laboratories being served. Programs include: Workplace Surveillance; Chemical Waste Management; Laboratory and Chemical Hygiene Training; Hazard Assistance; Regulated Medical Waste; and, Regulatory Compliance Assistance. During 2003, program enhancements were initiated to include a Program for Hazard Communication Standardization across the University; the program provides for the following: standardized laboratory door signage; consistency in chemical container labeling; and, an improved Health and Safety Compliance Assistance and Audit Program. A 100 percent laboratory/work center hazard assessment verification walkthrough was also initiated, with completion expected, in early 2004. Information obtained from this effort will provide current locations of essential safety equipment and update the EHS Laboratory Hazard Database. Additionally, updated information provides emergency responders with essential hazard information on USU's facilities and further defines workplace monitoring priorities. Improvements are also being made in sample collection and in-house analysis abilities. Such initiatives will enhance the screening of workplace and personnel environments for hazardous agents used in conducting purposeful medical research.

SOM Department of Psychiatry Sponsors a Collaborative Relationship with the Stanley Laboratory of Brain Research.

The Stanley Brain Bank, part of the Stanley Medical Research Institute, is made possible through the generous funding of the Theodore and Vada Stanley Foundation... The Brain Bank is part of the School of Medicine Department of Psychiatry of the Uniformed Services University of the Health Sciences and is located on the grounds of the National Naval Medical Center in Bethesda, Maryland. The Stanley Brain Bank has 500 specimens; in addition to using the tissue for its own research, the Stanley Brain Bank has sent over 100,000 sections and blocks to 120 research groups around the world. At most national and international research meetings on schizophrenia and bipolar disorder, at least half of the presentations and posters on neuropathology reflect work utilizing tissue from the Stanley Brain Bank.

- **E. Fuller Torrey, M.D., Executive Director, the Stanley Foundation Research Programs on Schizophrenia and Bipolar Disorder, *Stanley Brain Bank Newsletter*, No. 10: Spring 2002.**

Background. In February of 1999, during a ribbon-cutting ceremony, the University President welcomed the Stanley Laboratory of Brain Research to the SOM Department of Psychiatry. Through a collaborative arrangement with the University, the School of Medicine, and the Stanley Foundation, the USU community now has access to the Stanley Laboratory's brain specimens from individuals who suffered from diseases such as schizophrenia, bipolar disorder, and severe depression - the largest of such collections in the World. The Stanley Foundation Brain Bank and Neuropathology Consortium is made possible through funding from the Theodore and Vada Stanley Foundation. Its purpose is to collect postmortem brain tissue and to distribute it, without charge, to research groups working on schizophrenia and bipolar disorder (manic-depressive illness).

Current Activities. **E. Fuller Torrey, M.D.**, and his research group continued to provide outstanding expertise to the University, throughout 2003. The Stanley Foundation postmortem brain collection for research on schizophrenia and bipolar disorder has over 600 specimens; the USU Laboratory has distributed more than 160,000 sections and blocks of tissue to 160 research laboratories worldwide that are conducting research on these diseases. Some 55 large freezers contain the collection located at the Brain Research Laboratory in the USU SOM Department of Psychiatry. The specimens are approximately evenly divided among individuals who were diagnosed with schizophrenia, bipolar disorder (manic-depressive illness), severe depression, and normal controls. Most of the specimens are provided to researchers doing research on schizophrenia, bipolar disorder or depression. For example, during 2000, the Stanley Foundation donated a normal control specimen to a World Health Organization project dedicated toward the establishment of worldwide standards for brain tissue for comparison with prion-caused diseases such as Creutzfeldt-Jakob Syndrome. On April 9, 2001, The Washington Post featured Doctor Torrey in an article entitled, *Thinking Outside the Box*. The article included the following statement: ***The Stanley Foundation is supporting a quarter of the research on schizophrenia and half of the research on manic-depression in both the United States and Europe.*** In addition, Doctor

Torrey's article, *Severe Psychiatric Disorders May Be Increasing*, was published in Psychiatric Times, Volume XIX, Issue 4, April 2002. Also during 2002, Doctor Torrey received the *William C. Porter Lecture Award* from the Association of Military Surgeons of the United States.

When the Stanley Foundation initially assumed responsibility for the Neuropathology Consortium, it looked forward to the day when it would have hundreds of measurements on the same parts of the brain from many different laboratories. That task is being addressed through the work of **Doctor Michael Knable** who is assessing over 1,000 markers of brain function in the prefrontal cortex, cingulate, hippocampus, and superior temporal area. Many abnormalities from this study have already been published in Brain Research Bulletin (Volume 55, pages 651-659, 2001) and Clinical Neuroscience Research (Volume 2, pages 171-181, 2002); other publications are in progress.

In May of 2001, Morley Safer of *60 Minutes* interviewed Doctor Torrey with a focus on his research on schizophrenia and bipolar disorder. That interview was featured on the April 21, 2002 edition of *60 Minutes*. Doctor Torrey co-authored the book, Surviving Manic Depression: A Manual on Bipolar Disorder for Patients, Families and Providers (published by Basic Books, 2002); and, he also published The Invisible Plague: The Rise of Mental Illness from 1750 to the Present (Rutgers University Press, 2002). During 2003, he was profiled in the Princetown Alumni Weekly and the Stanford Magazine.

Information Technology.

Background. During 1994, committees were formed at the University by the School of Medicine and the Faculty Senate to address USU's future use of computers and technology in general. With the rapid development of Information Technology (IT) and Medical Informatics at USU in mind, the University President sent a delegation of seven USU representatives to the American Association of Medical Colleges (AAMC) Information Technology Conference. The conference served to reenforce the University's inclusion of computer-assisted communication and technology within its strategic planning process. With support from the leadership at USU, strategic goals were developed so that Medical Informatics would be utilized to emphasize distance learning, continuing medical education, computer-assisted medical education, access to medical databases, and other medical information systems. The focus of those efforts, in accordance with the University's mission, would be on the unique educational requirements of military and disaster medicine. In October of 1997, a number of USU information technology-related committees were combined to form the Automated Information Systems Policy Committee (AISPC). This committee met, as required, to review guidance and objectives, identify resources, develop requirements, and plan information technology policy strategies and training.

Overview of Activities in 2003. On-going activities and improvements reported, during 2003, include the following: **Servers:** Provided daily maintenance support for more than 52 network servers and devices. **Network:** Utilized large optical storage devices to support USU's data. **Enterprise Database:** Successfully developed and deployed two additional applications of the USU Corporate Database - the Admissions and Registration Application for the Graduate Education Office; and, the USU

Alumni Application. **University Homepage:** USU Webmasters redesigned the University's Homepage and core pages. **Training:** The UIS Training Officer developed the *UIS User's Guide* in support of the University's Strategic Plan. **Desktop Computers:** UIS continued its on-going management of a three-year technology refreshment cycle for 976 desktop computers within the University. **Centralized Software and Support:** Managed all of the USU supported software for the central computing facilities and acquired new site license software to assist researchers, students, and library staff in managing database references. **Teleconferencing:** Substantially improved systems for up and down links for the University's video teleconferencing systems. **New Technology:** Initiated the development of a pilot project for wireless access within the University. **Network Separation:** Began building the infrastructure and performed tasks to separate the .mil and .edu networks. **UIS Professional Training:** UIS personnel continued to receive certification and training (e.g., MCP, MCSE, Oracle, Contracting, Supervisory, and Networking) to better support the various USU departments and activities.

Customer Support. During 2003, the University Information Services Management Center (UIS) provided support for almost 3,000 information systems users. Support was provided in the following areas: accessing e-mail; remote dial-in accounts; Internet Protocol (IP) and IP2 connections; and, satellite and software applications. During the past year, UIS supported: 1,500 dial-in-users; 2,236 voice and fax telephone lines; and, 1,400 Voicemail Systems located on and off campus, at the National Naval Medical Center, other DoD facilities, and various non-DoD facilities. *In addition, as the owner of a Class B Internet License, USU acts as an Internet Service Provider (ISP) for the National Naval Medical Center and 12 off-site DoD activities from Groton, Connecticut to Quantico, Virginia.*

Desktop Computers. Following guidance from the Office of the Assistant Secretary of Defense for Health Affairs (ASD/HA), a plan to lease desktop computers by the University was implemented in 1998. The plan calls for all basic office automation and teaching computers to be replaced with leased systems. In accordance, the UIS Helpdesk deployed the fifth phase of the University's desktop computer leasing program, during 2003; this cycle included an additional 60 new leased machines. *This brings the USU total to 976 desktop computers in a three-year technology refreshment cycle.* This process continues to provide standardization, technology refreshment, enhanced budget planning, compatibility, and improved user support. UIS continues to manage \$583,000 in contracts to support the leased machines and \$187,000 to support software licenses for the central computing facilities.

Help Desk. A set of desktop tools, also based on ASD/HA guidance and USU requirements, was recommended by the AISPC and approved by the USU President. In addition, the University signed an agreement under a Maryland State Educational Contract (the Maryland Enterprise Educational Consortium (MEEC) with the Microsoft Corporation that provides site licenses at significantly reduced educational rates. This agreement allows the UIS Help Desk to make the latest Microsoft software available to all faculty, staff, and students. *The selection of a single set of desktop tools has greatly simplified user support and improved the Help Desk response.* During 2003, the Help Desk received 7,726 requests for assistance, of which, 3,301 calls were assigned and resolved by the Help Desk Branch. In efforts to continually prevent and resolve virus attacks, as well as provide prompt action for its customers, *the Help Desk resolved more than 308 virus requests, this past year.* Based on recommendations from one of USU's Strategic Planning Committees and the UIS Training Coordinator, the UIS Help Desk

provided weekly computer tips to users, along with timely alerts reference protection and resolutions for numerous computer viruses. The Help Desk acquired site-wide licenses for *EndNote*, *ProCite*, and *Reference Manager*, in 2003. This software helps researchers, students, and library staff to manage database references, build bibliographies, and search the Internet for references. In 2003, the Help Desk provided application requirements to the Software Development Team; this action took place during the analysis phase of a project to integrate isolated Help Desk databases into a central location, to be shared and associated with other related records. During the latter part of 2003, the Help Desk initiated a project to implement the web-based call tracking tool (*iHeat*), to work in conjunction with the existing client tracking system. This tool will allow technicians and managers to access records from a web location versus desktop client. Other successful Help Desk projects, during 2003, included: conducting an annual inventory of all leased machines; IP tracking and maintenance of databases; testing and deploying new software products; deployment and replacement of two rounds of leased machines; and, management of USU supported products. The UIS Help Desk continues to participate in USU-located training on standard operating procedures and off-site training to acquire professional certification, which contributes to the reduction of calls and an increase in user productivity.

Software Development. During 2003, the Information Engineering Branch (IEB) provided continuity in the development of applications and populating data into the USU Corporate Database. The Enterprise Database is designed to track people, processes, and property at USU, through a central database structure, which will be shared or accessed by staff, faculty, and students. While the scope of the project was initially to replace applications on the Legacy System, it has expanded to isolated personal computer (PC) applications.

In 2003, the IEB successfully deployed a client/server and web-based application for the Graduate Education Office. For the first time at USU, potential graduate applicants are able to apply to the USU Graduate Education Program via the Internet. With the implementation of this system, ***the Graduate Education Office (GEO) can now electronically process and matriculate applicants, and register them for all courses. Faculty and staff utilize the GEO System to electronically submit grades to the registrar; grades are then verified and posted to the web,*** which is then viewable by the students through their individual, secure accounts. This system consolidates and replaces two Legacy Systems that are no longer accessible to the users.

Also during 2003, IEB developed and implemented the USU Alumni Application. This application allows for the tracking of all USU Alumni in a central database. ***The Alumni System tracks all pertinent data for USU Alumni and includes the ability to store several addresses for location information and to maintain records of Alumni training, promotions, awards, and certifications.*** As a result, the Office of Alumni Affairs has readily available mailing lists, in addition to, various reports that demonstrate the success of the USU Alumni. The implementation of the Alumni Application replaces a Legacy System and three separate pc-based databases that were in use by the Graduate Education Office, the Graduate School of Nursing (GSN), and the School of Medicine (SOM) for tracking USU Alumni. In 2003, IEB also completed the *build phase* of the Laboratory Animal Medicine System; due to the complexity of this system, implementation will be completed, in phases, during 2004.

Software Development - Preliminary Planning. During 2003, the IEB Management Team started the preliminary investigation and planning of applications to be incorporated into the Enterprise Database for 2004. Some of the activities involved management briefings, meetings with potential customers, gathering information, defining scope, and estimating start dates. Applications for the following USU activities were identified for software engineering efforts: Continuing Education for Health Professionals; the Biomedical Instrumentation Center; the Military Training Network; Civilian Human Resources; Security; Military Personnel; and, the Audio Visual Center.

Software Maintenance. During 2003, the IEB responded to 1,163 maintenance, enhancement, and data requests associated with software applications developed before, and during, 2003. The requests included service for the Student Tracking and Registration System for SOM students (STARSII); Personnel Locator; Mailbox System; Graduate Education, Alumni Office, Pharmacy, and GSN Applications; and, AMCAS support (external files) and web applications.

New Technology. During 2003, UIS began investigating functions of the University that could benefit from wireless technologies. The IEB and the Operations Branch of UIS, in coordination with potential users, met to discuss possibilities and to initiate future planning. The IEB continues to staff a stable development team comprised of experienced software developers and a database administrator. Staff members hold college degrees and Oracle and Microsoft professional certifications. In all development projects, the *systems development life cycle methodology* is employed. IEB continues to use the latest versions of Oracle software and quality computer hardware to provide the University with state-of-the-art applications in support of its many processes and functions.

Web Development. Web development projects, during 2003, included the redesign of the USU Homepage and subsequent core pages of the USU web site. This redesign was approved by the USU leadership and provides several areas that highlight USU events. These areas include: ***the scrolling information box; current events; essential links; navigational links; and, the home page footer, which provides general contact information to web site visitors.*** Additional web development projects include the Graduate Education on-line Application, the Alumni Web site redesign, and the LAM web applications. The Web Masters continue to use a systematic methodology to perform web development activities. A new development/test server was implemented; in addition, a Mackintosh computer was also implemented for multi-platform testing purposes. Web projects were developed using *Microsoft ASP, Visual Basic, PERL*, and ran on a Microsoft IIS Server in a Windows 2000 Environment. To ensure data integrity and security from intrusions, all servers are routinely monitored and backed-up.

Training. During 2003, the UIS Training Officer provided classroom training for all SOM, GSN (to include two new classes for Perioperative Clinical Nurse Specialists and Doctoral Degree candidates), MPH, and Graduate Students, as well as personnel located at off-campus sites, such as Silver Spring, Maryland; the Walter Reed Army Medical Center; and, the National Naval Medical Center. The Training Officer also provided training at USU Faculty and Staff Orientations, which are held quarterly. At the user's request, the Training Officer performed specialized *hands-on* and *one-on-one* training for users on Microsoft Applications, GroupWiseE-Mail, the Proper Use of Network and Computer Resources,

Network Security, and the newly developed ROOTDOMAIN, as well as all supported UIS software and special requirements. The Training Officer, partnered with the USU Security Office, provided annual security awareness training required for all faculty, staff, and students. In support of the on-going strategic planning efforts, the Training Officer electronically distributed issues of the *UIS Newsletter* and the *UIS Quick Reference Guide* and finalized and distributed the *UIS User Guide*, in 2003. In addition, the UIS Training Officer began the development of a training schedule and topics for *Hands-On* training for implementation, during 2004. Both *Guides* and the *Hands-On* training were developed in response to the University's strategic planning efforts to improve on- and off-campus communications.

System Operations (Network, Telecommunications, NetWare, and VAX). In 2003, UIS System Operations continued to produce significant gains in the stabilization of the network. Emphasis remained on server stability. Again, USU experienced a University WEB exposure of over 99 percent uninterrupted up-time. In addition, the Operations staff maintained the Bethesda Naval Base fiber connectivity, when problems occurred in connectivity. **Web Support -** During 2003, the UIS Operations Division maintained and supported three web servers - *Primary, Interim, and Back-up*. The Primary Web Server hosted over 3,500 pages, during the past year.

Network. Network personnel are responsible for the University's network design, implementation, maintenance, and configuration management. During 2003, the network personnel continued to manage all local distribution systems with little, or no, down-time. ***The InterScan Virus Wall detected and deleted over 39,000 viruses from the Internet and e-mail servers.*** Projects during the year included: adding over 100 workstation drops to the network; installing over 150 student test systems with private network access for the Center for Multidisciplinary Services (MDL); and, installing two student testing servers with special security and access rights. The large data storage unit is being utilized to support an active, on-line data retrieval system.

Telecommunications. During 2003, Telecommunications personnel provided support for: 2,236 voice and fax telephone lines; 1,400 voice mailboxes; and, video conferencing and satellite technical assistance for a wide variety of users. During the past year, the Telecommunications Branch processed 1,602 customer requests. Significant improvements were made in the reliability of communications, video conferencing, and satellite services. New telephone lines and support equipment were installed in several newly acquired locations. In addition, numerous telephone lines and support equipment had to be replaced throughout the University, due to on-going renovations and relocations. Video conference technology support was provided to many USU activities, to include the VA/DoD Distance Learning Program, as well as, the SOM Departments of Medicine, Preventive Medicine and Biometrics, Medical and Clinical Psychology, and Obstetrics and Gynecology. Satellite programs were also downloaded for the SOM Department of Preventive Medicine and Biometrics and the Armed Forces Radiology Research Institute (AFRRI). During 2003, the Telecommunications Branch provided twenty-four *48-Hour Emergency Telephone, Cable and Special Circuit Support* to on- and off-campus locations that experienced service interruptions; those interruptions were due to inclement weather, renovation-related problems, and/or water damaged cables. Projects, during 2003, included: upgrading the ATM circuit from 10 Mbps to 15 Mbps; installing the Verizon Internet dial-up modem, which provides for faster and more reliable Internet connection; and, upgrading the voice mail system from 1,200 to 1,400 mailboxes.

The Telecommunications Branch also resumed providing long distance telephone reports to Activity Heads and Department Chairs; and, Telecommunications personnel continued to receive professional training at local IT training sites.

Netware/GroupWise/Microsoft/Linux. In 2003, the LAN Operations Branch processed more than 1,824 customer requests. The Branch is responsible for: the Novell's File and Print Servers; six GroupWise E-Mail Servers; one in-bound Netware Server; one in-bound Gateway Sendmail Server; two in-bound and out-bound Linux Sendmail Servers; and, two Microsoft Domain Controllers. The Netware Administrators provided maintenance support for the following: back-up of over 600 gigabytes of data; space allocations; on-line support of hardware failures; virus protection; testing and implementing vendor patches and upgrades; LAN account creation and deletion; reliable mail and file storage; and, the maintenance, creation, and attrition of over 2,500 Netware and E-Mail accounts and over 1,000 dial-in accounts. The LAN Operations Branch upgraded six GroupWise 5.5 Servers to GroupWise 6. In addition, a large shared storage unit was implemented and attached to a Microsoft Windows Domain Controller to provide 3 Terabytes of additional storage. Other projects included the implementation of a new back-up solution, IP-based printing, server hardware upgrades, and the establishment of an E-Mail Gateway between USU and AFRRI.

VAX. The VAX Administrator is responsible for system maintenance, hardware, and the software for the VAX and ALPHA Computer Systems. During 2003, the VAX Administrator processed more than 60 customer requests. Other accomplishments include: removal of computer equipment no longer required; relocation of the central off-site *Hot Site* from Building 27 to USU Building 53 (under the direction of the National Naval Information Medical Command); shutting down the CUFS Financial back-up *Hot Site* at Building 27 and the creation of a new *Hot Site* at Building 53, which is now fully operational; migrating older/slower disk drives to newer/faster drives, which are on the latest controllers and provide increased performance and higher reliability; removing old user accounts and data to back-up tapes, which allows for the consolidation of the remaining accounts and data onto fewer disks; creating universal department accounts to assist in the processing of JV data; continuing updates of the system software to prevent system crashes; continuing the reduction of the overall costs of the hardware and software contracts through the elimination of equipment and software; and, continued efforts to enhance users' disks to improve processing times.

Security. During 2003, the Information Systems Security Officer (ISSO), investigated security incidents and virus attacks from the Naval Investigative Service, NNMC, the Fleet Information Warfare Center (FIWC), DoD, and the USU Security Office. In addition to investigating incidents, the ISSO reported subsequent findings to the requesting agency based on the appropriate reporting procedures. The ISSO played a major role in eradicating over 400 computer viruses, as well as investigating well over 25 reports of inappropriate use of desktop computers. Other successful projects included: ensuring security configuration management tasks were performed on Leased Machines; identifying USU dial-in users who required virus protection software; applying medical record standards to personal computers for certification purposes; providing guidance to students, staff and faculty on ROOTDOMAIN user

accounts, access, and unlicensed software; reviewing the use of the Privacy Act Information for the Department of Preventive Medicine and Biometrics for C2 certifications; and, providing System Management Service configuration and testing.

Technology Transfer Program.

Background. Since 1980, Federal law has encouraged Federal laboratories and public academic institutions to transfer inventions and other technology to the public sector, which includes industry, state and local governments, and other academic institutions. This “technology transfer” process allows the benefits of public investment in research and development to be shared with all segments of our society. At the same time, institutions which invest public and tax-free funds in research are permitted to share in the downstream financial benefits of this investment - returning funds for use in further research and to provide limited financial incentives for individual researchers. Technology transfer includes cooperative research and development, patenting and protection of intellectual property, and licensing of inventions in return for a percentage of royalties. Because of the legal issues associated with these mechanisms and other aspects of technology transfer, the USU Office of the General Counsel is directly involved in the oversight of the University’s Technology Transfer Program. Recognizing the growing amount of intellectual property developed by the University faculty, USU and the Henry M. Jackson Foundation (HJF) established a Joint Office of Technology Transfer (JOTT), in 2000, to enhance interrelationships with USU researchers and to facilitate both patent protection and commercialization of developing technology.

Through the assistance of the United States Army’s Intellectual Property Division (pre-2000) and the JOTT, USU has established itself as a leader in biomedical technology transfer and one of the most productive and successful income producers among all government agencies. This success has enabled USU to provide substantial funding support for USU research, as well as significant monetary awards to individual scientists. A Technology Transfer Income Oversight Committee, chaired by the USU Vice President for Executive Affairs, provides oversight over the allocation of technology transfer income. University initiatives are also advanced through the use of collaborative research and development agreements, licensing inventions, intellectual property protection, and partnering with designated patent management organizations.

Current Activities. The USU Technology Transfer Program has been, and continues to be, a successful effort. A significant indicator of the success of this program is its efficient facilitation of the sharing of the USU research in a manner that promotes progress in science and improvement in the quality of health care for both the Armed Forces and the world community. In 2003, the University entered into: three new Cooperative Research and Development Agreements (CRADAs); 46 Material Transfer Agreements; 11 patent applications; and, 13 provisional patent applications. During 2003, eight patents were issued for USU inventions; and, two new invention licenses were signed, for a total

of 13 income-producing licenses. Numerous faculty researchers also received information and guidance from the staffs of the JOTT. Significant efforts were also made in managing and maintaining previously protected intellectual property, CRADAs, and licenses. Highlights, during 2003, also include: 1) continued development, in conjunction with HJF and several faculty members, of a Joint Patent and Technology Review Group; 2) involvement in the University's annual Research Day; 3) funding of short- and long-term research and educational efforts through special project funds and endowment accounts administered by the HJF; 4) direct funding support for the SOM's newly established Institute for Vaccine Research; and, 5) royalty sharing for nine faculty researchers.

RESOURCE STEWARDSHIP

STEWARDSHIP: We will protect and enhance the human and physical resources of the University, optimize productivity, promote a sense of family and community, while emphasizing flexibility in response to changing world conditions.

- Goal 5, STEWARDSHIP, USU Strategic Plan, 2003.

New Construction on the USU Campus.

Background. Since 1978, there has been no additive construction to support USU activities despite the growth in the number of degree-granting programs conducted by the University and major increases in the cost-effective oversight responsibilities assigned to the USU by the Office of the Assistant Secretary of Defense for Health Affairs (OASD/HA). Some of the expanded responsibilities include: the Graduate School of Nursing (GSN); administration of the TriService Graduate Medical Education (GME) Programs for the National Capital Region; mandated professional Continuing Health Education (CHE); and, essential credentialing programs for the MHS. In addition, *the accrediting entities for the University have continuously recommended that USU address the expanded academic program requirements for small classrooms; and, they have expressed serious concerns over the separation of the GSN faculty and students between two locations, which adversely impacts student instruction, mentorship, and counseling.* Between September 1993 and December 1997, USU was prohibited from participating in the military construction process. However, following the December 1997 decision of the Secretary of Defense that the University should remain open, as stated in Program Budget Decision 711, the USU Vice President for Administration and Management (VAM) was directed by the USU President to provide oversight for the resubmission of all documentation and related efforts required for the construction of a fifth building on the USU campus.

The Beginning of a Four-Year Process for an Approved Construction Project. On April 4, 1997, a Health Affairs site team determined that the construction of a fifth building at USU, in Fiscal Year 2001, would eliminate leasing costs and would be cost-effective. On March 26, 1998, Design Authorization 98-N-10 was provided to the Naval Facilities Engineering Command with the following directions: 1) the inclusion was to take place in Fiscal Year 2001; 2) the scope of construction was to include 8,312 gross square meters; 3) the design/construction amount, in 1997, was \$15,000,000; and, 4) DD Form 1391 and a Draft Program for Design were provided with the authorization. The Navy Facilities Engineering Command completed its call for contractor bids on the design requirements for the USU construction project and remained on hold until the USU construction was approved by Health Affairs. In May of 1998, Health Affairs determined that construction at USU would not be included in the Fiscal Year 1999 Defense Health Program (DHP) MILCON package; and, the Surgeons General would be required to identify funding from their Medical Construction Programs. *In June of 1998, the Senate Committee for the 1999 Military Construction Appropriation Bill urged “the Department of Defense to address the requirement for a fifth building construction project in the Fiscal Year 2000 budget.”*

During 1999, *the Military Construction Appropriations Bill for FY2000 included the following: “The Tricare Management Agency is directed to accelerate the design of this project* (the construction of a fifth building on the USU campus) *and to include the required construction funding in its fiscal year 2001 budget request.”* In response to the congressional directive, and, in its capacity as the Executive Agent for USU, on October 26, 1999, the Navy Bureau of Medicine (BUMED) Facilities Planning and Programming Division initiated the contracting process for a Project Planning Study. The USU Project Planning Study, to develop a quantifiable needs assessment for space, began on December 6, 1999; BUMED also established a TriService Study Team to review and validate the identified requirements; and, the USU President also established an *ad hoc* committee to assist the VAM. The first phase of the study was provided in draft form to the TRICARE Management Agency, in January of 2000; in addition, the VAM organized inclusive background notebooks, which provided documentation, projected space requirements, and mission-related information covering the program requirements for the nine USU requirements that were included in the Project Planning Study: (1) the unification of the **GSN** faculty and students at the USU campus; (2-6) the cost-effective relocation of essential personnel to the USU campus (**GME**, to include the Administrative Office for the National Capital Consortium, **CHE**, the Military Training Network (**MTN**), Preventive Medicine and Biometrics (**PMB**), and the **TriService Nursing Research Program Liaison Office**; (7) address a severe shortage of *classrooms and lecture halls*; and, (8-9) provide housing for both the **USU Office of Educational Affairs** (to include USU readiness and simulation requirements) and critical requirements of the Office of the USU President, to include the **USU Chaplain**.

BUMED Study Validates the Proposed Construction. The BUMED Study Team focused on two primary areas of concern: 1) the functional shortfall of current and projected requirements for small, multi-functional, and multi-configuration capable classrooms; and, 2) the cost-effective relocation of USU activities from leased space to the USU campus. The BUMED Study Team coordinated a justification/validation process with the Services for the requested space. Following the validation process, a memorandum was completed by BUMED and forwarded by the Navy Surgeon General on February 17, 2000, to the Chair of the USU Executive Committee; the memorandum recommended that the Surgeons General pursue a joint decision to program funding for the proposed construction of Building E on the USU campus. On April 12, 2000, USU was informed by BUMED that a consensus had been reached among the Surgeons General on the following factors that represented the position of the USU Executive Committee: 1) the project represents validated space requirements and is needed; 2) the current estimated project cost (\$9 million) is appropriate; and, 3) the project should be programmed by TMA (TRICARE Management Activity) utilizing standard MILCON processing milestones (i.e., FY05 or later). *On September 25, 2001, USU was notified by BUMED that its construction project had been included in the TRISERVICE Medical MILCON Program for Fiscal Year 2006 at a total cost of \$9,300,000 (the total was increased to \$9.6 million, by TMA, in January of 2003).*

Scope of the Construction Project. The total scope of the proposed construction project is 56,020 gross square feet, which includes underground parking. The Program for Design distributes 41,055 gross square feet to meet the University’s requirements for ample circulation associated with the movement of students and staff between classrooms. The 41,055 square feet will be constructed with a fibre-optic backbone throughout the occupied portions of the building and connected to the existing USU IT network.

Breakout of the 41,055 square feet reflects as follows: *Education Offices/Administrative Support* - 21,315 gross square feet; *Classroom/Classroom Support Space* - 12,065 gross square feet; *General Support* (Toilets/Lockers, etc.) - 4,346 gross square feet; *Distance Education Production Laboratory* (Studio) - 2,654 gross square feet; and, a *Computer Learning/Testing Area* (20 Stations) - 675 gross square feet.

All Required Studies for the USU MILCON Project Are Completed. The coordination process for the proposed USU construction project was developed using the Defense Medical Facilities Office, Office of the Assistant Secretary of Defense for Health Affairs, Space and Equipment Planning Systems (SEPS). The Bureau of Medicine, the Engineering Field Activity Chesapeake, the Naval Facilities Engineering Command, and the TRICARE Management Activity, Health Affairs, directly coordinated in the development of the construction project. All studies/analyses were completed and provided in a Project Notebook, dated October 2000. The *Environmental Assessment Study*, initiated in October of 2000, was coordinated and subsequently completed; in mid-November of 2001, USU was informed that the proposed construction would not adversely impact the environment; and, an Environmental Impact Statement would not be warranted. A request to the Chief of Naval Operations (CNO) for a formal determination was submitted; ***the CNO's written response, documenting no significant impact/approval of the environmental assessment findings, was dated September 17, 2002.***

TMA Approves Design Authorization for the USU Academic Program Center Project. ***The Military Construction Appropriations Bill for Fiscal Year 2003 included \$1.3 million for the accelerated design of the USU Academic Program Center.*** During December of 2002, BUMED requested that the VAM provide/present a briefing/point paper on the University and a tour of USU for staff from the TRICARE Management Activity (TMA). Next, the VAM provided an overview of the on-going collaborative activities between USU and the Department of Veterans Affairs (VA). ***On January 8, 2003, USU was provided with documentation from TMA authorizing the design of the USU Academic Program Center Project at \$9.6 million and the approved Program for Design.***

Ewing Cole Cherry Brott, Architectural and Engineering (A&E) Firm, Is Selected by the NAVFAC Medical Facility Design Office. The A&E firm selected by the Engineering Field Activity Chesapeake Naval Facilities Engineering Command is ***Ewing Cole Cherry Brott***. On March 17, 2003, representatives from BUMED, the NAVFAC Medical Facilities Design Office (EFA Chesapeake), and the A&E firm met at USU for a preliminary meeting pending the awarding of the contract for design. The USU President, the VAM, and the Facilities Division represented the University.

S-1 Design Meeting - May 21-22, 2003. Following the awarding of the design contract, on May 21-22, 2003, a pre-design (S-1) meeting was hosted at the Washington Naval Yard by EFA Chesapeake. Most of the meeting was spent determining which activities would be placed on the Ground, First, and Second floors of the new building. The University was asked to respond to several action items following that conference; all information was provided to EFA Chesapeake by June 10, 2003. A field investigation took place, which included a site visit to USU to conduct soil borings and measure the surface of the project site area.

S-2, S-3 and S-4 Design Meetings. The second design meeting (S-2) with the A&E took place on September 16-17, 20003, at the USU campus. The purpose of the S-2 was to: conduct a review of the S-2 design submittal; identify and resolve all major space program assignments and deficiencies at an early stage in design; develop the massing and aesthetics of the facility; and, establish the scope of the building. Unresolved comments/concerns from the S-2 meeting were incorporated into the S-3 submittal. The S-3 Design Meeting was held on March 1-2, 2004; most concerns were resolved either before, or during, the meeting. The S-4 Design was submitted by the A&E to EFA Chesapeake on July 1, 2003; on July 20, 2004, NAVFAC (EFA Chesapeake and the Medical Facilities Design Office) successfully presented the S-4 design to the TRICARE Management Activity, at OSD. At this time, the Construction Award is expected to take place between December of 2004 and March of 2005.

Navy Base Allocation of Space to USU. Since 1998, the Vice President for Administration and Management (VAM), has led the coordination with the National Naval Medical Center (NNMC) for the reallocation of space that was once occupied by the Naval Medical Research Center (NMRC). ***Over 48,140 gross square feet of space has been added to the University, through these efforts.*** Following confirmation of adequate funding to support the new space; a successful coordination process with NNMC; and, the completion of a separate Memorandum of Understanding for each building, USU has been allocated responsibility for Buildings 53, 59, 79, 28, and 139. NMRC's relocation process was completed in July of 2001. Building 59 was made totally available to USU, during 1999; Buildings 28 and 79 were turned over to the University, during 2000; Building 53 was assumed by USU in July of 2001; and, Building 139 was allocated to USU, during 2002.

To date, four USU School of Medicine Departments: Clinical Pharmacology; Psychiatry; Radiology and Radiological Sciences; and Neurology (*11,969 useable square feet*), the Graduate School of Nursing (*635 useable square feet*) and the Multi-Disciplinary Laboratories (*676 useable square feet*) occupy a total of 13,280 useable square feet in Building 53; Building 59 is occupied by the SOM Department of Military and Emergency Medicine with *1,066 useable square feet*; and, the top floor of Building 28 is occupied by the Graduate School of Nursing (*1,206 useable square feet*) and the SOM Department of Medical and Clinical Psychology (*1,127 useable square feet*); the bottom floor of Building 28 is occupied by the USU/OSD Patient Safety Program (*821 useable square feet*) and the USU Center for Health Disparities Research and Education (*798 useable square feet*).

In accordance with the USU Strategic Plan, which calls for the acquisition of additional laboratory and administrative space for the University programs, ***six SOM Departments occupy 14,162 useable square feet of space in the newly acquired buildings; the GSN occupies 1,841 useable square feet; the MDL controls a USU Conference Room, with 676 useable square feet; and, two University activities occupy 1,619 useable square feet. To date, over 18,298 useable and renovated square feet have been allocated to ten USU activities and departments.***

Building 53. Building 53 is a two-story structure with an additional mid-level basement that houses the building and hyperbaric mechanical support systems. The allocation of Building 53, which includes approximately 32,285 square feet, addresses USU's urgent requirements for laboratory, administrative, and storage space; these requirements will **not** be addressed by the proposed construction of a fifth building on the USU campus. Building 53 includes 12 large laboratories and several thousand usable square feet of administrative space. At the request of the USU President, the Dean of the SOM directed his space committee to make recommendations through him to the USU President for the allocation of space on the second floor of Building 53. That process was completed by the beginning of 2003. For Fiscal Year 2003, the annual utility bill for Building 53 was \$410,263; the cost of annual custodial requirements, during 2003, was \$71,630.

Building 59. Building 59, a two-story structure, has 4,072 usable square feet, which include an immersion pool/tank, a physiology lab, an instrumentation lab, and divers' lockers. Following minor renovations completed during 1999, investigators from the Department of Military and Emergency Medicine moved into Building 59. Building 59 receives its information systems support through

equipment located in Building 53. The annual utility bill for Building 59 during 2003 was \$22,133; the cost of annual custodial requirements for Building 59 was \$9,974.

Building 79. Building 79, adjacent to Building 59, is a two-story structure with an unfinished second floor; it offers 1,066 usable square feet. The annual utility bill for this building was \$2,360; and, the annual custodial requirements will be calculated when the space is utilized. In September of 2003, funding was obligated for the initial design and renovation of the building.

Building 28. Building 28 is a two-story structure with a total of 5,155 square feet. Renovation of the second floor was completed and by mid-2002, it was used by two USU activities: the Graduate School of Nursing (1,206 useable square feet) and the SOM Department of Medical and Clinical Psychology (1,127 useable square feet). The renovation of approximately 1,619 square feet of space on the first floor was completed in June of 2004; it houses the USU/OSD Patient Safety Program (821 useable square feet) and the USU Center for Health Disparities Research and Education (798 useable square feet). Utility costs are being estimated for 2004; the annual custodial costs were \$12,455.

Building 139. Building 139 is a one-story structure with approximately 5,562 square feet, which was made available for the USU SOM Department of Surgery and the USUHS/Windber Medical Center/Walter Reed Army Medical Center/Department of Navy Clinical Breast Care Project, during 2002. This research project utilizes a multidisciplinary approach as the standard of care for treating breast diseases and breast cancer. The multidisciplinary model integrates prevention, screening, diagnosis, treatment, and continuing care; the project is further unique in the proposed incorporation of advances in risk reduction, informatics, tissue banking, and research. The Clinical Breast Care Project paid for all required renovations; it also paid all costs associated with the building to include utility, maintenance, and custodial requirements, during 2003.

Renovation of the New Buildings. Due to the condition of the newly acquired buildings, renovation efforts have been on-going. For example, in September of 2002, with the approval of the USU President, the VAM successfully coordinated with Resource Management and the Navy Public Works Center to complete the required documentation for the obligation of funding to renovate the lower level of Building 28. It was decided by the USU President that the renovated space would be allocated for the USU/OSD Patient Safety Program (821 useable square feet) and the USU Center for Health Disparities Research and Education (798 useable square feet); the renovation project, in Building 28, was completed in June of 2004. New roofs were installed on Buildings 28, 53, and 59, during 2003. Significantly, resources were funded at the end of 2003 for the renovation of the air handling units in Building 53, which will be completed, during 2004. Requests for future renovation requirements and upgrades, in these newly acquired buildings, are continuously being planned and incorporated into the USU Facilities Division Project Listing, in anticipation of available end-of-year resources.

USU Facilities Division Project Listing Serves as the Strategic Plan for Construction and Renovation Requirements at the University.

Background. For seven years, the USU Facilities Division, under the direction of the USU Vice President for Administration and Management (VAM), has successfully coordinated with the Navy Public Works Center (PWC) to streamline and maximize the process for obligating funding for urgently required renovation projects throughout the University's infrastructure, during, and at the end of, each Fiscal Year. Such a process requires extensive documentation and must comply with DoD regulations for the acceptance of funding by PWC, Engineering Field Activities, Chesapeake (EFA), or the USU Contracting Office.

An On-Going Process. During each Fiscal Year, the USU Facilities Division and the Director of Logistics meet weekly with PWC personnel and the VAM to: 1) ensure open communication; 2) resolve on-going concerns and issues during the implementation of previously funded projects; and, 3) ensure the preparation of documentation for future projects and the on-going obligation of funding as it is identified by the USU Vice President for Resource Management. A Project Listing is regularly updated and provided by the USU Facilities Division to all participants at both PWC and USU to ensure that this demanding process is both open and accurate, to include the required monitoring of on-going projects, and the maintenance of complete and accurate status information.

The Project Listing currently includes the following information: 1) the status of unfunded projects for the current Fiscal Year, to include design and construction costs; as of June 28, 2004, there are 60 active projects in this section of the Project Listing (*this total does not include 18 unfunded Fiscal Year 2004 laboratory projects*); 2) totals and status of completed documentation submitted by the USU Facilities Division to the USU Office of Resource Management for projects recommended for funding in the current Fiscal Year (2004); 3) totals and current status of projects already funded during the current Fiscal Year (2004); as of June 28, 2004, \$2,656,716 has been funded during the current Fiscal Year (2004); and, 4) the current status of all previously funded projects during past Fiscal Years (***Fiscal Year 2002: from June 4, 2002 through September 30, 2002, a total of \$10,051,460 had been obligated by USU with the PWC; Fiscal Year 2003: from October 1, 2002 through September 30, 2003, a total of \$11,918,827 had been obligated by USU with PWC.***

This process is both time consuming and complex; however, it has been found to be most acceptable by both PWC and USU management. The USU Facilities Division Project Listing serves as the ***Strategic Plan for the Construction and Renovation Requirements*** for the entire USU complex. As projects are completed, new requirements are constantly being identified by the PWC engineers and the USU Facilities Division; once recognized, they are entered into the Project Listing and begin the documentation and funding process. As a result, the USU campus (to include the newly acquired buildings) is well maintained and reflects excellent stewardship on the part of the leadership of the University. Without the Facilities Division's time-proven process, the University would not be in a position to accept funding from Health Affairs or other sources during, or at the end of, each Fiscal Year. During the past three years, the support from the USU Vice President for Resource Management (RM) has been excellent. The VAM and Facilities Division spend many hours coordinating with RM to ensure that the infrastructure of the USU campus is well maintained, through the obligation of funding

with the PWC. The on-going selection, design, and renovation of research laboratories has also been streamlined through the decision-making process established by the Dean of the School of Medicine on July 2, 2002; the laboratory renovation process is coordinated with the USU Vice Presidents for Research and Resource Management.

Laboratory Renovations throughout Buildings A, B, C, and D. During 2000, with the approval of the USU President, and the identification of funding by the Vice President for Resource Management, the VAM and the USU Facilities Division provided oversight for the renovation of 2,310 square feet of laboratory space throughout the USU complex. Laboratory renovation was completed, through the Dean, SOM, for four Departments: Biochemistry; Obstetrics and Gynecology; Radiology and Radiological Sciences; and, Anatomy, Physiology and Genetics. During 2001, one laboratory with 468 square feet was renovated within the Department of Biochemistry. With the 33,127 square feet of renovated laboratory space that took place from 1993 through 2000, combined with the 468 square feet of renovation, during 2001, the total of renovated laboratory space was approximately 33,595 square feet, or 38.6 percent of the 86,926 square feet of laboratory space in the USU complex. During 2003, 1,862 square feet of laboratory space was renovated for three SOM Departments: Obstetrics and Gynecology (two laboratories - 460 square feet); Microbiology and Immunology (two laboratories - 690 square feet); and, Anatomy, Physiology, and Genetics (two laboratories - 712 square feet). *Combining the total of 33,595 previously renovated square feet with the 1,862 square feet renovated, during 2003, totals 35,457 square feet; or, 40.8 percent of the 86,926 total square feet of laboratory space at USU. During 2003, \$1,120,926 was funded for laboratory renovations through collaborative efforts with the VAM, the USU Facilities Division, the Dean of the School of Medicine, and the Vice Presidents for Resource Management and Research.*

Renovated Space in Building 53. Throughout 2000 - 2003, with the approval of the USU President (and the identification of funding for projects by the Vice President for Resource Management), *the USU Facilities Division provided oversight for contracted work, support, and manpower from its Division staff for the renovation of a total of 7,899 square feet of laboratory and administrative space in Building 53.* The SOM Departments of Medicine (Clinical Pharmacology - 2,630 square feet), Psychiatry (1,932 square feet), and Radiology and Radiological Sciences (2,026 square feet) represented a total of 6,588 square feet of renovated space for the SOM; the Graduate School of Nursing had 635 square feet renovated for mentoring and educational use; and, the MDL Division of Teaching and Research Support had a conference room with 676 square feet renovated for use by the entire USU community. All of the extensive relocation and furniture requirements for the USU personnel assigned to these renovated spaces were coordinated by the USU Logistics Division. *During 2003, \$331,747 was funded for replacing the air handler units; and, \$227,106 was funded for installing natural gas capabilities, in Building 53.*

Heating/Ventilation/Air Conditioning (HVAC) Replacement Project. Following the identification of environmental and health concerns reference the necessary air exchanges required throughout the USU complex and the inability to procure replacement parts for the antiquated USU HVAC systems in Buildings B, C, and D, the VAM and the Facilities Division, with the approval of the USU President, coordinated with the Public Works Center (PWC) to design a complete replacement of the USU HVAC system. Building B was selected as the first area for renovation because it had the poorest air exchange

in its laboratories. Phases 1 through 7 have been completed. Phases 1-7 (\$8,900,000) included the construction of a mechanical room and the replacement of the HVAC system throughout Building B; this project began during 1999 and was completed in October of 2001. Phases 8 (\$2,456,260) and 9 (\$2,403,680) included Building C; they were completed at the end of 2002. Phase 10 (\$4,181,699) included Building D and was completed in early 2004. Since Building A includes a different HVAC system than Buildings B,C, and D and replacement parts are available for its HVAC system, air-handlers and ductwork in Building A will be renovated as appropriate, in future years. This expansive HVAC renovation project, including approximately 330,000 square feet, required the continuous relocation of various USU personnel; both the USU Logistics and Facilities Divisions dedicated extensive time and support to minimize disruption to the USU mission.

Anatomical Teaching Laboratory Renovation Efforts. During 1998, it was identified that the backroom/storage areas containing the freezers and work space for the Anatomical Curator required significant renovation. Late in Fiscal Year 2001, the VAM requested a review of the project and began coordination with the USU Vice Presidents for Resource Management and Teaching and Research Support for the renovation of both the work areas and the freezers. With the approval of the USU President, and the identification of funding by the Vice President for Resource Management, the Facilities Division coordinated with the Navy Public Works Center for an accelerated design for construction. That effort concluded successfully and \$201,254 was obligated for the construction requirements, during September of 2001. Resource Management, through the USU Contracting Directorate, also obligated funding for the purchase of new freezers. The project was successfully completed, during March of 2002. In September of 2003, funding was made available to replace the air handler unit #1 (\$1,751,532), which is critical to the Anatomical Teaching Laboratory; construction will begin in March of 2005.

Plaza and Elevator Repair. When the University was originally constructed, a drainage system had not been provided under the plaza. As a result, there had been a steady leakage of water throughout the underground garages and various areas at the ground floor level. Separate attempts had been made to correct this concern over the past years; however, none resolved the problem. During 2000, the Facilities Division worked with PWC/EFA to design a repair project for the plaza, which included four phases. The first two phases were funded during 2000 and completed. Funding in the amount of \$654,112 was funded in September of 2001 for the final two phases. Work was completed, during 2002, and the contractors also finished some minor related projects to include the replacement of concrete.

Funding was obligated for the repair/renovation of the elevators in Building A (three elevators), Building B (four elevators), and Buildings C and D (four elevators). Determination of the order of renovation for the 11 elevators throughout Buildings A, B, C, and D was based on the number of repair calls and general deterioration of the individual elevators. The renovation of the 11 elevators took place, one at a time, to reduce the level of inconvenience to the USU community; estimated construction time per elevator was four months. Construction of the Building A elevators began, in August of 2001, and was completed during December of 2002. Construction of the Building B elevators began, in October of 2002, and was completed in late 2003. Construction of the Building C and D elevators began, in November of 2003, and were completed, in April of 2004.

USU Campus Meets National Naval Medical Center Fire Regulations.

Background. Following the events of September 11, 2001, regulations for the enforcement of fire codes have been revitalized throughout the Federal Government. Within minutes of the terrorist attack at the Pentagon, occupants found themselves struggling to breathe due to heavy smoke, while they crawled along office floors and hallways to escape the resulting fires. This experience has reenforced the absolute necessity of providing written instructions, training, detailed evacuation routes, and unrestricted escape routes (hallways) for all personnel. Due to the shortage of office and storage space, throughout the USU campus, complying with the mandatory fire regulations has proven to be an on-going, difficult, yet successful process. On August 14, 2002, the USU received a memorandum from the National Naval Medical Center (NNMC) Fire Chief that identified specific areas of concern and fire code deficiencies. The USU Vice President for Administration and Management (VAM) coordinated a memorandum that was distributed to all USU personnel, on September 12, 2002. That memorandum addressed two major areas of concern: 1) occupant instruction and training regarding fire safety; and, 2) the clearing of all USU hallways in Buildings A, B, C, D, 53, 59, and 28. The USU Facilities, Logistics, Administrative Support, and Security Divisions worked directly with the SOM department chairs and administrative officers to meet the NNMC fire and safety regulations.

Actions Completed to Bring the University into Compliance with Fire Regulations. The first action concerned the USU Instruction providing the *Occupant Emergency Plan* for the University; it was updated and re-issued on October 25, 2002. Copies were provided to all activity heads and chairs and the instruction was also made available on the USU Web Site. A process has been implemented so that all current and new employees are made aware of the Occupant Emergency Plan. Next, *Emergency Evacuation Personnel Listings* of those USU personnel designated with specific responsibilities during an evacuation such as hallway monitors, assistants for the handicapped, etc., were updated and issued to all activity heads and chairs. The Director of the USU Security Division met with all personnel included on the listings to ensure that they were fully prepared to carry out their responsibilities. The USU Security and Facilities Divisions also *identified and verified all evacuation routes and posted evacuation signs throughout the USU campus*; this information is also posted on the USU Web Site. Following an emergency evacuation drill coordinated with the NNMC Fire Chief, on November 8, 2002, the VAM issued a briefing paper to the USU community on November 19, 2002, on *emergency evacuation procedures*. The focus of the briefing paper was on the critical requirement for compliance and specific directions on what actions should be taken during an emergency evacuation. All activity heads and department chairs are responsible for ensuring that all of their personnel know the evacuation routes and procedures to be followed during an emergency evacuation. *Two training sessions were coordinated by the USU Security Division, during January of 2003.*

The most difficult requirement for compliance included *the clearing of all hallways, throughout the USU campus*. All hallways had to be cleared except for the following items: already existing duplicating equipment and one filing cabinet per principal investigator/course instructor. Nothing can be placed on top of the filing cabinets; no storage cabinets may be placed in the hallways. Approved items must be placed on only one side of the hallways, to include the carts and trash cans that are placed inside the laboratories at the end of each working day. The VAM and the Facilities, Logistics, Administrative

Support, and Security Divisions established a schedule for meeting the NNMFC Fire Regulations and conducted inspections throughout the entire campus. *Since the process began, during late 2002, and was successfully completed, in March of 2003, over 200 filing cabinets have been removed from the USU campus.* This is an incredible accomplishment on the part of the USU community. It was a time-consuming and difficult process, which included an extensive review and disposition of files, equipment, and supplies by the activity heads, chairs, and their administrative officers. In support of this effort, over 100 file boxes have been stored in the record management holding area of the Administrative Division; and, additional storage areas were constructed, in coordination with the NNMFC Fire Chief, on the second-floor walk-way between Buildings B and C. Those storage areas were distributed in a manner to ensure compliance with the NNMFC Fire Regulations. *At this time, the University has satisfactorily met all requirements of the NNMFC Fire Chief.* The VAM and the Facilities, Logistics, Administrative Support and Security Divisions continuously inspect the hallways of the entire campus to ensure on-going compliance.

Resource Management Programs.

Background. The areas of responsibility described below are under the oversight of the USU Vice President for Resource Management. **Mr. John E. Dexter** was selected as the first USU Vice President for Resource Management in June of 1990; he served in that capacity until November 19, 2000. Following an extensive search, the second USU Vice President for Resource Management, **Mr. Stephen C. Rice**, was selected and assumed the position on November 20, 2000.

Financial & Manpower Management. The University's Financial & Manpower Management (FMG) Directorate successfully closed out the Fiscal Year 2003 Operations and Maintenance account (one-year money) with obligations of \$96,103,000, for an obligation rate of 99.995 percent. During the last quarter of Fiscal Year 2003, the University received an additional allocation of \$3,000,000 to be applied against the University's maintenance and repair budget for the replacement and upgrade of air handlers and acid waste drain lines. The University was also able to make significant progress on its equipment back-log, funding over \$1,800,000 in support equipment.

Once again, *the University maintained the finest Travel Card Program in the Department of Defense.* USU's delinquency rate average of only 0.5 percent far exceeded the Department's *benchmark* of 3.0 percent. What makes this record noteworthy is the fact that hundreds of claims reflect long-term travel (30 days or more); however, the reimbursement process is so prompt, for both partial and final settlements, that travelers are not inconvenienced. A high level of support from the USU President, Deans, and Vice Presidents ensures the continued success of this highly visible program.

Financial Management underwent a reorganization of its Financial Services Office (FSO) by creating an accounting section for posting thousands of cross-disbursing transactions and to assist in addressing the new reporting requirements of Health Affairs, DFAS-Indianapolis, and Washington Headquarters Services. This reorganization was accomplished without additional hires. The Chief of

Accounting Systems and Policy assumed the responsibilities for heading the newly formed section. This reorganization will allow FMG to handle a growing workload by permitting accounting technicians to specialize. This change has the added benefit of reducing the amount of training required for each position, which should result in new personnel becoming effective members of the team, in a shorter period of time.

The FSO expanded its travel card program to include the use of a unit card for airline tickets for all of the USU Bushmaster field exercises. The University's field exercise commander expressed his appreciation to FMG for the new practice, as it provided him with increased flexibility managing extensive travel arrangements; it also facilitated the reconciliation of the monthly bill.

The University's bill for accounting support received from the Defense Finance and Accounting Service (DFAS) decreased by \$38,000, or over eight percent, during Fiscal Year 2003 (from \$493,000 to \$455,000). This is a continuing result of the USU Accounting Systems & Policy (ASP) Division's oversight and provision of support to DFAS in the preparation of accounting reports. Charging outside organizations for their use of USU procurement services on direct cited funds saved \$231,000 of USU administrative costs. An additional \$412,000 of administrative costs were saved by billing for indirect costs associated with the reimbursable program.

FMG is actively participating in the University's effort to find a modern replacement accounting system for the College and University Financial System (CUFS) that will be compliant with Federal and DoD requirements. FMG has worked closely with DFAS and the TRICARE Management Activity (TMA) to help implement the daily transfer of detailed accounting data into the DFAS Corporate Database (DCD) from CUFS. This is an on-going effort and resources are continuing to be expanded in its development. Additionally, ASP has been working with HQ DFAS-Arlington on developing a system interface for the processing of the Intra-Government Transaction System. The development is in the *concept of operations stage* and increased participation will be required in the near future.

Two important financial management initiatives were continued, during 2003. First, Resource Management has added new vigor to the mid-year review process, meeting individually with each Chair, Vice President, and Activity Head. This has resulted in a new emphasis on shared problem solving for budgetary issues. Second, there is an increased level of detail and justification required in the USU budget submissions, leading to a clearer articulation of priorities and a better use of resources.

Resource Management Information Office. The Resource Management Information Office (RMI) is comprised of the Systems Administration Branch and the Information Systems & Services Branch. The RMI develops, maintains, and administers University resource management information systems for over 500 users located at USU and AFRRI. These systems consist of the College and University Financial System (CUFS), DoD's Standard Procurement System (SPS), and Research Administration's COEUS Grants Management System. During 2003, the RMI completed several program development and implementation projects; some examples of these accomplishments are listed below.

- ***Technical Lead for the AFRRI Merger into the USU CUFS:*** The RMI provided technical guidance and completed system set-up tasks that enabled the merger of AFRRI's financial activities into the USU CUFS. Implementation tasks included defining and coordinating the business process flow for the approval, tracking, and procurement of AFRRI's goods and services.

- ***Development of the CUFS/DFAS Corporate Database Interface:*** The RMI completed a DoD-mandated interface program between CUFS and the DFAS Corporate Database. The data transfer program provides a feed of the CUFS daily financial activity, from both USU and AFRRI, into DoD's central repository of accounting information.

- ***Development of a Grant Invoice Tracking Report:*** The RMI developed a tracking program to assist the USU Grants Management Office (GRT) with its management of grant invoices. The report assists GRT with prompt recognition of payment errors, as well as enhancing the overall administration of invoices through the payment cycle process.

Grants Management Office. In its fourth year of operation, the Grants Management Office (GRT) awarded 14 new grant agreements, worth more than \$21,000,000; and, it completed over 100 modification actions to existing awards. Currently, the Grants Management Office manages 132 active USU agreements ranging from \$28,000 to \$41,000,000. The total award value of all awards is approximately \$383,000,000.

There are more than 75 principal investigators conducting work on research projects awarded to 12 grant recipients. A majority of the awards go to the Henry M. Jackson Foundation and the remaining are awarded to other non-profit organizations including universities, private foundations, and institutions. Currently, there are 23 agencies providing funding support for the active grants. The Grants Management Office processes an average of 48 invoices per month for payment. These invoices are paid at nine different pay stations, both at DoD and Federal civilian sites.

The Grants Management Office also provides oversight for the TriService Nursing Research Program (TSNRP), a \$9,000,000 program with more than 70 grants. TSNRP is a congressionally-funded program, which is supported by a staff and an Executive Director.

During 2003, significant accomplishments include the following activities:

- Served as the primary granting authority for TSNRP to approve and sign all TSNRP award documents, modifications and administrative actions requiring the authorization of a grants officer;

- Established a Review Team to conduct programmatic, legal, and financial evaluations of USU grant agreement actions and proposals. This team is made up of officials from GRT and the USU Offices of the Vice President for Research, Research Administration, and the General Counsel; representatives from the respective Oversight Committees are also included, as appropriate;

- Negotiated indirect cost rates for three new grantees and sub-grantees. Assisted by the Defense Contract Auditing Agency, GRT coordinated the completion of annual financial audits to

determine the rates that grantees can apply on their grant agreements; this effort has greatly assisted the grantees;

- Relocated GRT to permanent office space in G013. The new office space has facilitated the workflow, as it provides a central location for GRT personnel and files;

- Conducted an allowable cost review on grant programs to review program expenses. The results of the allowable cost review were submitted to the USU Review Team, which issued its concurrence and related concerns about certain program expenses; GRT provided the collective decision on approved expenses to the grantee;

- GRT approved advance payments to be issued on several grant agreements. The payments were made in an effort to provide for a more efficient distribution of funds to the grantee. This effort will subsequently reduce the number of invoice payments from twelve to four per year. Although advance payments have been authorized, the payment schedules are reviewed regularly; they may be adjusted quarterly, or to reflect the receipt of additional funds; and,

- Processed and closed out fifteen expired grant agreements, thereby reducing the number of grants on the active grants list. This process has reduced oversight and management of the grants and provided for the return of unused funds to the United States Department of Treasury.

Contracting Directorate. During 2003, the USU Contracting Directorate (CTR) provided significant support to the many unique programs of the School of Medicine, the Graduate School of Nursing, University Activities, the Armed Forces Radiobiology Research Institute (AFRRI), and numerous DoD initiatives and programs. The past year was characterized by both high productivity and significant challenge, primarily due to the loss of experienced personnel and the need to assemble a new acquisition team. While in the process of building a team of well-qualified professionals, CTR completed procurement actions amounting to nearly \$28,800,000 - one of the highest amounts in the history of USU.

2003 was a banner year for USU researchers, which resulted in an increased requirement for contract support. The success of the USU research programs resulted in a number of new research projects funded by the National Institutes of Health and the Naval Medical Research Center. New missions directed by the Congress also brought about a significant increase in the demand for acquisition support; this category includes contracts for Molecular and Clinical Based Comprehensive Cardiac Care, the Center for Disaster and Humanitarian Assistance Medicine, the Casualty Care Research Center, the Center for Prostate Disease Research, and the Complementary and Alternative Medicine Program.

The University's use of the Government Purchase Card (IMPAC card) reached \$8,641,525. The University has more than 200 cardholders and 50 billing officials who made 21,600 purchases, during 2003. This procurement authority, decentralized throughout the University to individual cardholders in departments, laboratories, sections, and offices, has revolutionized the acquisition of required items. The departments routinely obtain next-day desktop delivery, saving both time and money in the process. The Government Purchase Card (GPC) Program is the responsibility of the Contracting organization in each activity. CTR trains and appoints all cardholders and billing officials, which is a considerable

duty, given the turnover of personnel. In addition, CTR publishes training materials and standard operating procedures, and conducts annual audits. During 2003, the University Check-Writing Program, a component of the GPC Program, was reviewed in detail by a DoD Inspector General (IG) Team; their report found no significant issues.

CTR continued its emphasis on several government-wide programs to ensure the appropriate distribution of contracts to small and minority-owned businesses and the purchase of supplies from vendors who are blind, or otherwise handicapped.

Staffing and rebuilding a professional CTR workforce for the future was a major, on-going effort, during 2003. USU hired several college graduates who qualified for the Contract Specialist Intern Program; this provides a four-year period of both education and on-the-job experience, designed to grow in depth and complexity as the individuals progress through their internship phases. The USU is recruiting for additional qualified individuals; and, CTR makes use of commercial sector sources for obtaining short-term, expert contract assistance. Additionally, CTR has made use of other government departments' capabilities to assist with the timely award and delivery of needed supplies, services, and equipment. This authorized and innovative outsourcing gives CTR leverage and a multiplying productivity factor, enabling its small contracting staff to accomplish the University's procurement needs, while building a highly qualified new team for the future.



II. READINESS

Thank you for the 2002 Edition of the USU Journal. Your record of accomplishments is truly impressive. Never has the need been greater to provide top quality professionals for our Military Health System. The men and women serving in Iraq and in other challenging assignments around the world are in good hands... What you do is so important to the future of our nation.

- Kenneth A. Goss, Director, Government Relations,
Air Force Association, Letter dated November 3, 2003.

As Army Nurse Corps officers in the USU Master Degree Family Nurse Practitioner Program, our education further prepares us to live out our motto - Ready, Caring, Proud.

Operation Bushmaster provided a scenario portraying a hostile environment. The week-long exercise (conducted in San Antonio, Texas) allowed for Advanced Practice Nursing and School of Medicine students to work together in a field environment under simulated battlefield conditions. We students found ourselves triaging and aggressively maintaining patient care as second nature. Biological and chemical agents played a much bigger part in our scenarios than we had experienced in previous training. The threat of these weapons was ever-present and a time consuming enemy tactic for all medical personnel that required proactive planning. At other times, both nurses and medical students racked their brains attempting to diagnose infrequently seen diseases, such as meningitis and malaria... Exotic diseases were present in our training scenarios as well. With the assistance of battlefield telemedicine and satellite communication with stateside facilities, such as the Walter Reed Army Medical Center in Washington, D.C., we were able to describe afflictions and send photos of patients for consultation, diagnosis, and treatment.

- Nursing Spectrum, *Caring for Those in Harm's Way*,
Volume 13, No. 6DC, March 24, 2003, pages 8-9.

The military unique curricula and programs of the Uniformed Services University, successfully grounded in a multi-Service environment, draw upon lessons learned during past and present-day combat and casualty care to produce career-oriented physicians, advanced practice nurses and scientists with military unique expertise.

Four USUHS activities, internationally recognized by the emergency responder and health care communities, stand by ready to provide cost-effective, quality-assured WMD-related training and consultation. The USUHS Casualty Care Research Center, the Center for Disaster and Humanitarian Assistance Medicine, the Center for the Study of Traumatic Stress, and the Armed Forces Radiobiology Research Institute have established credibility in providing military unique expertise covering four areas of WMD-related concerns: 1) the preparation of emergency responder communities; 2) ensuring communication and assessment of military medical humanitarian assistance training; 3) addressing traumatic stress of both civilian and uniformed communities during WMD-related incidents; and, 4) the development of medical radiological countermeasures to include the provision of unique training for the response to radiological emergencies.

- Vice Admiral Michael L. Cowan, Surgeon General of the Navy, Testimony before the Senate Appropriations Committee, Defense Subcommittee on Defense Health, April 30, 2003.

The combination of DoD's expertise in the field treating casualties from unconventional attacks and the VA infrastructure of medical centers, clinics, satellite broadcast capabilities and affiliations with medical schools will enable U.S. medical professionals to become knowledgeable and medically competent in dealing with future attacks. Content for the training sessions would be based on programs established at the USUHS School of Medicine, the nation's only federal medical school. Sometimes referred to as the "West Point for Doctors," USUHS offers an education in military medicine, preparing graduates to handle "real world scenarios that most doctors are ill-equipped to face. Students would learn how biochemical and radiological agents act on the human body and how to handle a suspected exposure - from the point of detection through to decontamination and medical countermeasures," according to information from Congressman Buyer's office.

- Washington Fax, *VA bills would offer treatment, research and physician training to fight chemical, biological and radiological attacks*, April 9, 2002.

Recent tragic events and the current Global War on Terrorism clearly show the benefits of preparedness and training. It is gratifying to know USUHS is leading the way in preparing military health care professionals to meet current and future challenges. Please accept my appreciation and pass on a hearty "Well Done!" to your colleagues and the students for their dedicated efforts in support of our men and women in Uniform.

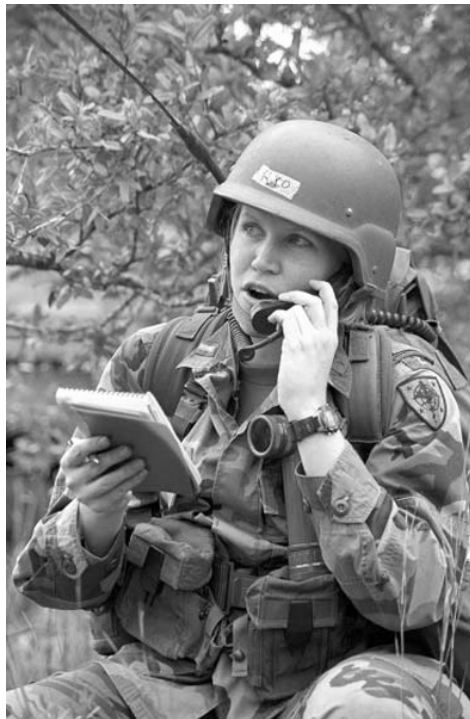
- General Richard B. Myers, Chairman of the Joint Chiefs of Staff, Letter to USU, March 29, 2002.

These graduates leave USUHS trained to provide continuity in ensuring medical readiness and the preservation of lessons learned during combat and casualty care. This critical role is, in fact, the significant factor that led the Congress to establish USUHS in 1972.

- The Honorable Paul S. Sarbanes, United States Senator from Maryland, Congressional Record, *Tribute to Val G. Hemming, M.D.*, May 17, 2002, page S4533.

The Graduate School of Nursing (GSN) is successfully preparing unique advanced practice nurses to deliver care for the Uniformed Services during disaster relief and humanitarian interventions and, by doing so, ensures military readiness.

- The Honorable Daniel K. Inouye, United States Senator from Hawaii, Congressional Record, *Tribute to Dr. Faye Glenn Abdellah*, May 15, 2002, pages S4488-S4489.



Preservation of Lessons Learned During Combat and Casualty Care



OPERATION BUSHMASTER

II. THE F. EDWARD HÉBERT SCHOOL OF MEDICINE

As the Executive Agent of the Uniformed Services University of the Health Sciences (USUHS), I would like to comment on the extraordinary achievements of the University... USUHS SOM graduates, with retention averaging twenty years of active duty service, now represent over 22 percent of the total physician officers on active duty in the Armed Forces. USUHS graduates are exceeding the original expectations of Congress when the University was established, thus ensuring continuity and leadership for the Military Health System.

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy**, Testimony before the Subcommittee on Total Force, House Armed Services Committee, March 27, 2003.

ESTABLISHMENT

Background. From 1945 to 1950, there was an acute deficit of medical experience resulting from the rapid downsizing after World War II. The loss of physicians was so acute, and retention so poor, that the Army and Navy medical departments began residency programs as a recruitment and retention device. In 1950, the physician shortages forced the involuntary recall of reservists and also forced the retention of those eligible to retire.

After the Korean War, the United States, for the first time in peacetime, maintained large, active-duty military forces through conscription and allocated significant resources to build and maintain a world-wide military presence. The medical departments of the Army, Navy, and Air Force participated in this expansion and relied on conscription. During this time, over 90 percent of all graduating physicians and dentists served on active duty for an average of two years.

During the conflict in Vietnam, from 1964 to 1972, medical support of a sophisticated nature was deployed in fixed facility hospitals with staff and equipment equal to those of academic medical centers in America. The helicopter essentially replaced the motor ambulance for evacuation; and, air evacuation to the United States became routine. Capitalizing on the lessons learned in past wars, preventive medicine kept the infectious disease and non-effectiveness (*inability of the forces to participate in combat activities*) rates at the lowest levels of any war, while rapid evacuation and advanced surgery reduced the died-of-wounds rate.

The Uniformed Services Health Professions Revitalization Act of 1972, Public Law 92-426. The conscription of physicians, which began in 1950, ended in 1973 when the draft law was repealed. In anticipation of this, both a military medical school, the Uniformed Services University of the Health Sciences (USU), and a Health Professions Scholarship Program (HPSP) in civilian medical schools were

established by Congress in 1972 to provide physicians for the Armed Forces. The Uniformed Services Health Professions Revitalization Act of 1972, Public Law 92-426, established the HPSP Program to be a flexible source for the *quantity* of physicians required by the Armed Forces; USU was established to provide a cadre of military medical officers who would serve as *career officers*, providing continuity and leadership for the Military Health System.

USU's First Academic Program. The F. Edward Hébert School of Medicine was established by Congress as part of Public Law 92-426 in 1972, with its first class graduating in 1980. The early development of the University concentrated on USU's first academic program, the School of Medicine (SOM). **Anthony R. Curreri, M.D.**, was appointed as the University's first President in 1974. **Jay P. Sanford, M.D.**, joined **Doctor Curreri**, at the USU President's request, and was later appointed as Dean, SOM, in May of 1975; he served as Dean through 1990.

The initial development of objectives for the SOM was accomplished through the combined efforts of the Board of Regents (BOR), the BOR Educational Affairs Committee, Doctors Curreri and Sanford, and special working groups. Activities used to develop these objectives included committee meetings, retreats, and consultation with a variety of experts from military medicine and civilian medical organizations and institutions. Individuals and groups consulted included: *the Surgeons General* of the Army, Navy and Air Force; *Chiefs of the Medical Departments/Services* of the Army, Navy, and Air Force; *physicians from* the Walter Reed Army Medical Center, the National Naval Medical Center at Bethesda, the Malcolm Grow Air Force Medical Center at Andrews Air Force Base, the Wilford Hall United States Air Force Medical Center, the United States Army Academy of Health Sciences, Sheppard Air Force Base Academy of Health Sciences, Brooke Army Medical Center, and the Armed Forces Institute of Pathology; *the Service Secretaries* from both the Air Force and Navy; the Association of American Medical Colleges (*AAMC*); the American Medical Association (*AMA*); the Liaison Committee on Medical Education (*LCME*); the Department of Health, Education, and Welfare (*HEW*); the National Institutes of Health (*NIH*); and, the following *Universities*: George Washington, Georgetown and Howard.

Five Individuals Have Served as the Dean, SOM. The USU Board of Regents reviews the final candidates for the Dean of the SOM prior to selection by the USU President. To date, five individuals have held this position:

Jay P. Sanford, M.D., was appointed as the first Dean, SOM, in May of 1975 and served through 1990;

Harry C. Holloway, M.D., served as the **Deputy Dean** from 1990 through June of 1992;

Nancy E. Gary, M.D., was appointed as Dean on June 28, 1992 and served through mid-1995;

Val G. Hemming, M.D., served as Interim Dean from July 2, 1995 through May 3, 1996; and, following a national search, served as Dean from May 3, 1996 through May 19, 2002; and,

Larry W. Laughlin, M.D., Ph.D., was appointed as Dean on May 20, 2002 and continues to serve in that position.

MISSION

The USUHS shall: 4.1. Educate and train competent medical personnel qualified to serve the needs of the Uniformed Services through providing the highest quality education programs in the health sciences; 4.2. Place high priority on educating and training personnel to meet the combat and peacetime medical needs of the Armed Forces; and, 4.3. Grant applicable advanced academic degrees; establish postdoctoral and postgraduate programs, and technological institutes; conduct medical readiness training and continuing education for members of the Uniformed Services in the health professions; and prepare individuals for careers in the health professions in the Uniformed Services.

- **DoD Directive 5105.45**, approved by the **Honorable John J. Hamre, Deputy Secretary of Defense**, dated March 9, 2000, page 2.

Consistent Mission Direction Focused on Readiness. USU has a thirty-two year history of guiding statements, mission direction, goals and tasking documents from the Congress, the Executive Office of the President, and the Department of Defense. From the words of the School of Medicine's "Founding Father," **Congressman F. Edward Hébert**, ... as he described how he first envisioned the University during the 1947 timeframe:

The mission of USUHS is to produce... dedicated young officers who... will be able to mobilize and deploy rapidly... to meet military and civilian crises... The University will provide opportunities for aspiring young military officers to attain academic recognition..." (the Life and Times of Congressman F. Edward Hébert, 1976, page 408)

to the mission statement of March 9, 2000, quoted above from the Department of Defense Directive for USU... the goals of the USU SOM have remained consistent. The USU SOM must provide: 1) a cadre of career-oriented physician officers who will provide leadership and continuity for the Military Health System (MHS) and the United States Public Health Service; 2) unique training in: combat medical care; trauma; mass casualties; the response to chemical, biological, radiological, nuclear, and explosive (CBRNE) contingencies; medical logistics; and, rapid deployment; 3) joint training in a multi-Service environment; and, 4) the opportunity for health care professionals throughout the MHS to attain academic recognition.

Content for the training sessions would be based on programs established at the USUHS School of Medicine, the Nation's only Federal medical school. Sometimes referred to as the "West Point for Doctors," USUHS offers an education in military medicine, preparing graduates to handle "real world scenarios that most doctors are ill-equipped to face. Students would learn how biochemical and radiological agents act on the human body and how to handle a suspected exposure - from the point of detection through to decontamination and

medical countermeasures,” according to information from Congressman Buyer’s office (Congressman Steve Buyer, Chairman, Subcommittee on Health, House Veterans Affairs Committee).

- The Washington Fax, *VA Bills Would Offer Treatment, Research and Physician Training to Fight Chemical, Biological and Radiological Attacks*, April 9, 2002.

Strategic Planning. A formal process of strategic planning was initiated, in 1991, to set priorities for the University. The process was conducted by an executive steering committee chaired by the USU President and included representation from the entire USU community. Mission and vision statements and guiding principles were completed in early 1992. Since that time, as part of an evolving process, specific goals, strategies, and objectives have been established for the University, to include metrics for achieving those goals.

The SOM community has been actively involved in the development of the USU Strategic Plan by: participating in the initial strategic planning training sessions during 1991; finalizing the objectives and metrics during 1999 and 2000; and, engaging in on-going strategic planning sessions held during April of 2001, December of 2002, and throughout 2003. This multi-year process has included institutional retreats, town meetings, departmental briefings, and printed and electronic updates as a means of communicating with the SOM faculty and staff.

To ensure that the SOM’s future direction is consistent with that of its chain-of-command, the SOM strategic planning process is guided by the current strategies and goals of the MHS, which reflect the strategic planning policies and guidance established by the Office of the Assistant Secretary of Defense for Health Affairs. A formal process for identifying program needs and for submitting increased budget requests tied to the Strategic Plan has been established at USU. The individual SOM Departments must show a direct relationship with the University’s overall Strategic Plan when submitting their requests for future budgets. In addition, a School of Medicine Strategic Plan has been written that is in compliance with the University’s current strategies and goals; the SOM Strategic Plan has undergone review by the Basic Science Chairs Committee, the Clinical Science Chairs Committee, and the Faculty Senate.

Internal and External Departmental Review Process. A program was adopted by the School of Medicine in 1998, which mandated each SOM department to conduct a *self-study* every five years or at the time of the appointment of a new chairperson. The self-study would be followed with a review of the self-study by a group of *peers* from outside of the University. From 1999 through 2003, self-studies and external reviews have been completed by the following Departments: Anesthesiology; Dermatology; Family Medicine; Military and Emergency Medicine; Obstetrics and Gynecology; Pediatrics; Pharmacology; Neurology; and, Radiology and Radiological Sciences. Other departmental reviews pending completion include: Anatomy, Physiology and Genetics; Medical History; Medicine; Pathology; and, Psychiatry. The results of these studies will be used to chart future courses for these departments in education, research, and community service.

Mission Accomplishment...SOM Graduates Provide Continuity and Leadership for Military Medicine.

Retention of SOM Alumni and Their Unique Training Ensures Continuity for Lessons Learned in Military Medicine.

Ten Years of Congressional Testimony by the Surgeons General Validate that USU Alumni Ensure Continuity for the MHS.

The military unique curricula and programs of the Uniformed Services University, successfully grounded in a multi-Service environment, draw upon lessons learned during past and present-day combat and casualty care to produce career-oriented physicians, advanced practice nurses, and scientists with military unique expertise. The USUHS-unique training centered in preventive medicine and combat-related health care is essential to providing superior force health protection and improving the quality of life for our service members, retirees, and families. USUHS also provides a significant national service through its continuing medical education courses for military physicians in combat casualty care, tropical medicine, combat stress, disaster medicine, and the medical responses to weapons of mass destruction (WMD).

- Vice Admiral Michael L. Cowan, Surgeon General of the Navy, Testimony before the Subcommittee on Total Force, House Armed Services Committee, March 27, 2003.

The extraordinary retention of these military officers (USUHS alumni) ensures continuity for the MHS and the safeguarding of lessons learned during combat and casualty care... Furthermore, a significant number of USUHS graduates who have completed their residency training hold leadership or operational positions throughout the MHS... We place great emphasis on the retention of quality physicians in the military.

- Vice Admiral Michael L. Cowan, Surgeon General of the Navy, Testimony before the House Armed Services Committee, Subcommittee on Military Personnel, April 10, 2002.

I believe our opponents don't understand our business... they say medical care, and they envision peace time medical care as the only business we are in. In fact, we have two broad categories of business. One is called readiness. The other is called the peace time benefit.

USUHS, is the best investment in readiness medicine that we can make, (it) provides a tremendous baseline for us. We train our uniformed services graduates in the benefit missions through residencies, but they (USUHS graduates) have a foundation in readiness that we cannot get anyplace else. We don't practice medicine in the military. We practice military medicine.

- **Lieutenant General Paul K. Carlton, Jr., Surgeon General of the Air Force, Testimony before the Senate Appropriations Committee, Subcommittee on Defense, February 28, 2001.**

In Vietnam... I had no military training prior to coming in. It was a very challenging, difficult experience... when I got there I learned how to take care of Marines myself. I was alone. There was no place to med-evac patients, so through the night I had to keep casualties alive until we could move them during the daylight...

The emotional experience of a young doctor who does not have the right kind of training in these kind of things has driven me to where I am today.

My whole life since that time has been dedicated to try to prepare people for combat, and USUHS has been able to train these young physicians to be far more ready than I was. They are superb in medicine. The training that USUHS provides is far more than just the medical training. What we have here is the ability to train Army, Navy and Air Force and Public Health Service physicians from day one to work together in a joint environment. They go and they jump out of airplanes with the Army, they go with us to the Marine Corps, they go with us aboard ships at sea, and they go to the air. They do all these things together... from day one... so they develop a joint mentality that has a value of which you cannot quantify the cost of. So, when the time came for me to select a doctor who was going to go on the Joint Task Force for Somalia, I chose a USUHS teacher, ...one who had been there, who spoke the language, who was able to do joint planning and to effectively bring the troops to Somalia. You cannot cost that out...the value of having people with this kind of training is really irreplaceable. There are many, many, many courses and experiences at USUHS that are just not duplicatable. It is a national resource. They come as leaders... they are dedicated to stay with us for a long time... We want experienced people to stay in the military... Now that we have USUHS, we cannot give that up.

- **Vice Admiral Donald F. Hagen, Surgeon General of the Navy, Testimony before the Senate Armed Services Committee, March 2, 1994, pages 35-37.**

USU SOM Alumni Represent 22.2 Percent of the Total Active Duty Physicians in the Army, Navy, and the Air Force. Since its first graduation in 1980, through April of 2004, USU has granted 3,421 medical degrees; 2,735 of those graduates remain on active duty in the Uniformed Services: Army - 1,056; Navy - 789; Air Force - 796; USPHS - 94.

The active duty physician force in the MHS currently totals approximately 11,901 physicians (Army - 4,218; Navy - 3,983; Air Force - 3,700). The 2,641 USU SOM Graduates on active duty in the Army, Navy, and Air Force represent 22.2 percent of those 11,901 physicians. The early founders had hoped that the USU graduates would equal at least 10 percent of the total physician force; the USUHS SOM has more than doubled that original milestone. USU has steadily provided an excellent source of career-minded physicians who are uniquely skilled in the practice of military medicine.

USU SOM Alumni Provide Overall Retention Rates of 80 percent Over 24 Years. Where Congress had envisioned a retention rate close to 70 percent, the overall retention rate for USU SOM graduates from its first graduating class in 1980 through April of 2004, is 80 percent. Significantly, the median length of ***non-obligated service for physician specialists in the Military Health System, not including USU graduates, is 2.9 years***; however, ***the median length of non-obligated service for USUHS graduates is 9 years***. These retention rates become even more significant in light of the recruitment and retention concerns currently reported by the Armed Forces.

SOM Graduates Present Clinical Skills Required for MHS Residency Programs.

The Office of the Secretary of Defense, the Surgeons General, and Accreditation Entities Provide On-Going Validation of the Outstanding Clinical Educational Experiences Provided at USU.

I want to extend my congratulations to you, the leadership and the faculty at the Uniformed Services University for your exemplary performance in receiving a ten-year accreditation with commendation from the Middle States Commission on Higher Education. This is a notable achievement, and it reflects a successful, long-term commitment to the highest levels of professional medical education for this Nation's Military Health System. The quality of your graduates continues to serve as a testament to the quality of the teaching that was endorsed by the Middle States Commission. You and your staff continue to make significant contributions to our Nation's military readiness and our national medical preparedness.

- The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense, Health Affairs, Letter to the USU President, July 22, 2003.

I echo the assessment of USUHS provided by the Secretary of Defense on March 22, 2001: *The training USUHS students receive in combat and peacetime health care is essential to providing superior force health protection... USUHS is a unique national asset and a vital integrated part of the Military Health System.*

- Vice Admiral Michael L. Cowan, Surgeon General of the Navy, Testimony before the House Armed Services Committee, Subcommittee on Military Personnel, April 10, 2002.

The system in place for the documentation of the comparability of clinical educational experiences is an outstanding model for other institutions to emulate.

- Liaison Committee on Medical Education (LCME), Letter to USU, dated April 6, 2002.

Senator, the three of us (Surgeons General) make up the Executive Board for the Uniformed Services University of the Health Sciences (USUHS), and we have a direct impact on the university...over the last eight years, as I have commanded a major medical center and also as the Surgeon General, I have learned of the quality of the product of USUHS and

the focus that USUHS has on military medicine and the importance (of USUHS) to the Surgeons General. I would be hard put to be without the graduates of USUHS.

- **Vice Admiral Richard A. Nelson, Surgeon General of the Navy**, Testimony before the Senate Appropriations Committee, Subcommittee on Defense, February 28, 2001.

USUHS is a dramatic difference in depth and degree and experience and exposure and immersion in what we call military medicine, that is not available in the civilian community. My experience has been we have uniformly superior products in the (USUHS graduates). I happened to be stationed on an Army post before I came here, with a small clinic run by a young doctor. I saw the difference between his predecessor and himself, the USUHS graduate. He hit the ground running and turned the clinic around in just a few short weeks. It made a lasting impression on me.... From the clinics to the largest Air Force hospital in this country, Wilford Hall, USUHS graduates excel... A third of the USUHS graduates at Wilford Hall are in positions of high responsibility for their grade... I like what I see.

- **Lieutenant General Alexander M. Sloan, Surgeon General of the Air Force**, Testimony before the Senate Armed Services Committee, March 2, 1994, page 37.

2003 AAMC Medical School Graduation Questionnaire Results Validate that USU Graduates Are Highly Satisfied with their Medical Education. Evidence of the high quality of training that SOM students have received comes from many sources. For example, each academic year, the Association of American Medical Colleges (AAMC), with the assistance of medical school administrators, conducts a survey of graduating seniors at medical schools throughout the United States. Students are asked to rate statements that cover their entire medical school experience. Included among the numerous topics surveyed are premedical preparation, pre-clinical education, clinical experiences, student services and the overall quality of the medical education received. The USU Office of Student Affairs reported that the ratings of the Year 2003 Medical School Graduation Questionnaire show a consistently strong, positive evaluation by USU students at a level well above the all-schools comparison. For example, 67.6 percent of the USU SOM seniors “strongly agreed” with the statement, *Overall, I am satisfied with my medical education.* Whereas, when averaging the replies from all responding medical schools in the United States, only 35.0 percent rated the statement as “Strongly Agree.”

2003 Joint Service Graduate Medical Education Selection Board Results - 87 Percent Receive First Choice in Specialty. Traditionally, more than 75 percent of USU SOM graduates receive their first choice of specialty and location for their first year of residency training. In December of 2003, the Office of Student Affairs reported that the results of the 2003 Joint Service Graduate Medical Education (GME) Selection Board for the USUHS SOM Class of 2004 were favorable. The overall selection rate for FIRST CHOICE programs was 77 percent; 128 out of 167 USU students matched for their first choice both in specialty and training site. Seventeen additional students received their first choice in

specialty for a resulting total of 87 percent who received first choice in specialty. Feedback obtained from residency program directors indicates that SOM graduates are consistently recognized as well-prepared to complete graduate medical training.

USU SOM Students Pass the 2003 United States Medical Licensing Examination Step 2 at a Rate of 95 Percent. USU SOM students have consistently passed the United States Medical Licensing Examination (USMLE) Steps 1 and 2 at rates equal to, or higher than, the national average. In 1999, the National Board of Medical Examiners (NBME) began computer-based testing (CBT) for the USMLE Step 1 and 2 Examinations. The Step Examinations are administered at Prometric Testing Centers throughout the calendar year. Most of the USU fourth-year students (SOM Class of 2004) completed the Step 2 CBT between July and September of 2003. The overall performance for the Class of 2004 was strong; the average score for the class was 211 and the pass rate was 95 percent.

Operational Assignments, Leadership Positions, and Unique Understanding of Military Medicine Are Substantiated.

Military Associations, the Surgeons General, and the Office of the Secretary of Defense Confirm the Critical Requirement for USU SOM Alumni in the MHS.

Thank you for the 2002 Edition of the USU Journal. Your record of accomplishments is truly impressive. Never has the need been greater to provide top quality professionals for our Military Health System. The men and women serving in Iraq and in other challenging assignments around the world are in good hands... What you do is so important to the future of our nation.

- **Kenneth A. Goss, Colonel, USAF (Retired), Director, Government Relations, The Air Force Association, Letter to USU, November 3, 2003.**

These USUHS alumni serve in critical roles that are vital to the readiness mission of the Military Health System (MHS). The extraordinary retention of these military officers ensures continuity for the MHS and the safeguarding of lessons learned during combat and casualty care. Currently, USUHS School of Medicine alumni represent over twenty-one percent of the total physicians on active duty in the military services. Furthermore, a significant number of USUHS graduates who have completed their residency training hold leadership or operational positions throughout the MHS. (As of April 2004, the USU SOM alumni represent 22.2 percent of the total physicians on active duty in the military services.)

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy, Testimony before the House Armed Services Committee, Subcommittee on Military Personnel, April 10, 2002.**

Our Uniformed Services University of the Health Sciences has robust and long-standing educational programs in the medical aspects of biological and chemical terrorism developed for our military medical and graduate students. The University is now actively involved in adapting these programs to the civilian medical education community in both traditional and interactive web-based formats. The University works closely with other federal agencies, the private sector, and the American Association of Medical Colleges and the American Medical Association to accomplish these important and timely educational goals.

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs, Testimony before the House Committee on Government Reform, Subcommittee on National Security, Veterans' Affairs, and International Relations, November 7, 2001.**

As for recruiting, we have some of the best programs in the world. The young men and women who are coming out of the Uniformed Services University of the Health Sciences are absolutely superb!

- **Lieutenant General James B. Peake, Surgeon General of the Army, Military Medical Technology, Volume 4, Issue 6, 2000, page 18.**

Do I value USUHS?... I value it a great deal and (consider that) it is a major asset to this country. I do value the output. I can tell you that in the Army we have a deficit of training in the type of individuals who can go into combat with a battalion... and I do get complaints from line officers that we very frequently have physicians in there who are not ready for that. That is never the case when a USUHS graduate fills that bill.

- **Lieutenant General Alcide M. LaNoue, Surgeon General of the Army, Testimony before the Senate Armed Services Committee, March 2, 1994, page 35.**

USU SOM Alumni Hold Significant Leadership and Operational Positions Throughout the MHS.

Brigadier General Bill Fox, MC, USA, USU SOM Class of 1981, a urologist, recently assumed command of the Brooke Army Medical Center, Fort Sam Houston, Texas.

- **USU Medicine, *Class Notes*, Fall 2003, page 28.**

Brigadier General Bill Germann, USAF, MC, USU SOM Class of 1982, has been selected to command the 89th Medical Group (Malcolm Grow United States Medical Center), Andrews Air Force Base, Maryland.

- **USU Medicine, *Class Notes*, Spring 2003, page 31.**

Colonel Thomas Travis, USAF, MC, USU SOM Class of 1986, was selected for promotion to Brigadier General. Colonel Travis is currently the Commander of the 311th Human Systems Wing, Brooks City-Base (formerly Brooks AFB), Texas.

- **Sharon Willis, USU Alumni Affairs, E-Mail, *Another General Officer in the USU Family*, February 18, 2004, 12:47 PM.**

CAPT David Wade, MC, USN, USU SOM Class of 1981, is the Force Medical Officer, Commander-in-Chief, United States Navy, Europe.

COL Rhonda Cornum, MC, USA, USU SOM Class of 1986, is the Commander, Landstuhl Regional Medical Center, Germany.

- **Sharon Willis, USU Alumni Affairs, E-Mail, *Alumni in Significant Leadership Positions*, November 7, 2003, 3:05 PM.**

The highly dedicated USU graduates are earning promotions at above average rates; they have become well-respected in their medical specialties, and hold significant positions of leadership in areas of military medicine ranging from special operations and hospitals, to the White House and the newly established Department of Homeland Security, to deployments to Kosova and Iraq, and to assignments aboard ships at sea and with the Blue Angels. SOM alumni are engaged in patient care or research in military hospitals and clinics around the world, administering to active duty members, retirees, and their family members. These military physicians and the thousands of other health professionals who have taken advantage of the numerous graduate and continuing education programs provided by the SOM, are living testimony to USU's mission as the Nation's Federal Health Sciences University.

GAO Review Documents USU SOM Alumni Meet the Special Needs of the MHS. Following an inclusive review in 1995, the General Accounting Office (GAO) confirmed that **“43 out of 44 commanders of major military medical units perceived that physicians from the University have a greater overall understanding of the military, greater commitment to the military, better preparation for operational assignments, and better preparation for leadership roles.”** The GAO reviewers also pointed out that they **“perceive that University graduates have a better appreciation of and greater satisfaction with the physician's role within the military”** than other accession sources (General Accounting Office Report, *Military Physicians - DoD's Medical School and Scholarship Program*, September 29, 1995, page 43). Congressional testimony by the Surgeons General reflect that these significant findings have been validated over the past ten years.

USU SOM Alumni Hold a Significant Percentage of Leadership and Operational Positions in the MHS. A review completed in January of 1998, documented that of the approximately 1,431 USU graduates on active duty who were eligible to hold leadership positions, and were not in a post graduate educational status, 292 were serving as chairs, chiefs or heads of departments, directors of services, or program directors in military hospitals, clinics or centers. An additional 60 USU alumni were serving in operational assignments for the three military services. These 352 USU physician alumni were holding significant leadership and/or operational positions throughout the Military Health System (MHS). Another review conducted in February of 1999, documented that of the first six classes of USU graduates, from 1980 through 1985, 408 alumni remain on active duty; 170 of whom (approximately 42 percent) hold senior operational or leadership positions. In April of 2003, a preliminary review reflected that over 50 of the most significant Command Positions in the MHS are held by USU graduates.

The USU SOM Selection Process Ensures Commitment and Exemplary Retention Rates.

Medical Students represent every state in the union and other locations where American citizenship is granted. Selection of students has been through a well orchestrated administrative and committee process that is regularly reviewed each year. We are seeking the customary bright individual with an array of non-cognitive endowments that matter to the profession of medicine, and matter to one's identity as a commissioned military officer. In this regard, we select individuals whom we believe are gifted in leadership, self reflection, naturally engaging, adaptable and demonstrate evidence of placing service to others as a priority.

- *V. Students*, Subcommittee Report, Middle States Commission on Higher Education Self Study, USU Web Site, Prepared for the 2003 Accreditation Process, page 3.

It is important to maintain a sense of continuity by remaining committed to the traditions, core values, and justifiable pride that are part of military medicine. Leaders organize, challenge others, provide the resources, and create the environment for others to achieve goals and accomplish remarkable feats... They make us believe in the nobility of a cause. The integrity and strength of character of the leader results in loyalty and devotion on the part of those who follow. It is the job of a teacher to keep bringing us back to certain basic principles. It is the moral obligation of the teacher to know his or her students, to recognize their individual needs, and to provide information, guidance, and encouragement during the learning process. The future of the medical departments appears bright when considering the quality of applicants seeking admission to the School of Medicine at USUHS. As a group, they have impressive credentials. Their application essays reflect a bright, highly motivated, and service-oriented cadre.

- **Rear Admiral Donald L. Sturtz, MC, USN, (Retired), Professor, Department of Surgery, USU School of Medicine, Military Medicine, *Commitment*, Volume 166, September 2001, pages 741-742.**

High ethical standards, the candidate's own 'internal moral compass,' compassion, honesty, and integrity should be emphasized in the selection process for candidates to become the nation's physicians... Selection should employ MCAT scores and GPAs not as predictors of success in medical school, but as threshold measures to indicate only that applicants possess the intellectual endowment and scholastic aptitude needed to meet the academic rigors. Once candidates have satisfied those threshold requirements, we should give no

further weight to academic credentials but make selections on the basis of character traits and aptitude for serving others.

- **Jordon Cohen, M.D., President, Association of American Medical Colleges (AAMC),** Opening Remarks, the 108th Annual Meeting of the AAMC, on November 6, 1997.

The USU SOM Selection Process Withstands the Test of Time. The USU SOM selection process has been identified as one of the major factors in the success of the overall retention rates of the USU alumni. All candidates are carefully screened during the interview process to determine the following: 1) already recognized sensitivity for national, public, and/or community service, which clearly has the potential for enhancement in Federal service; 2) the presence of natural and adaptable leadership skills already documented in a variety of organizations and circumstances; 3) an enthusiasm for supportive care-giving directed at individuals and groups, forming the basis for involvement as a physician in the broad areas of medicine, and military medicine in particular; and, 4) a documented record of academic success, which extends beyond the boundaries of any standard curriculum, as demonstrated through individual creativity, service, and/or research. A Matriculating Student Survey conducted by the Association of American Medical Colleges (AAMC) showed that compared to the national group of matriculants, USU SOM candidates were more likely to select medicine as a career because of the opportunity to serve the community and to lead, and less likely to seek a medical career for purposes of prestige or high income.

The SOM Committee on Admissions, faculty and student interviewers, and the SOM Office of Admissions work together to manage and implement the SOM Selection Process. The Committee on Admissions is comprised of men, women, active duty, civilian, clinical science, basic science, minority, and community representation for a total of 26 individuals. The applicant review process operates at subcommittee and full committee levels, with the initial review focusing on Medical College Admission Test (MCAT) scores and grade point averages (GPAs). The secondary review process is designed to enhance the opportunity for inviting applicants to interview. Candidates with academic records that would ordinarily preclude regular review at the subcommittee level and those not initially invited for interview are reviewed by the Dean of Admissions. This allows the identification of candidates who may have been overlooked and supports the SOM effort to recruit active duty military applicants, disadvantaged individuals and underrepresented minorities. Folders of all interviewed applicants are reviewed by three separate subcommittee members and are presented for full committee review if ranked above the minimum threshold.

The *interview day* is consistently reported as a positive experience by applicants; during the interview process, the applicants take part in various activities, to include: organized briefings; two formal interviews; lunch; a tour of the campus with students; and, informal visits with the Associate Dean for Student Affairs, the Assistant Dean for Admissions and Academic Records, the Vice President for Recruitment and Diversity, the Assistant Dean for Clinical Sciences, faculty members and the SOM Commandant. Applicants are also given the opportunity to stay overnight with a student host. The selection process has continuously brought to the SOM a group of students who are academically

qualified and well-motivated to practice medicine. In the history of the medical school, only two percent of the student body has had to be disenrolled for academic reasons; this is about one-third of the national average. The excellent percentage of students graduating (almost 98 percent) is due to: 1) a good selection process; 2) a solid educational program; and, 3) genuine concern for those students who require academic or personal assistance during their time at USU.

ACCREDITATION

Strengths:

- **The oversight and coordination of scattered clerkship sites produce quality and comparability in a model that other medical schools should follow.**
- **Both faculty and the dean value their roles as mentors and educators of students.**
- **The students are enthusiastic about the University and for their education.**

Commendation:

- **The University is commended for its success in educating students to become physicians in the military thus achieving the vision of being “the pre-eminent university for military medicine.”**
 - **Evaluation Team of the Middle States Commission on Higher Education, Report to the Faculty, Administration, Trustees, Students of the Uniformed Services University of the Health Sciences, April 2, 2003.**

Early Coordination with Accrediting Entities. The developmental process for establishing the initial objectives of the SOM were accomplished through the combined efforts of the founding USU President, **Anthony R. Curreri, M.D.**, the Board of Regents (BOR), the Dean, **Jay P. Sanford, M.D.**, and, special working groups. Activities used to develop these objectives included committee meetings, retreats, and consultation with a variety of experts from military medicine and civilian medical organizations and institutions. Significant among those coordinating entities were representatives from both the Middle States Commission on Higher Education (provides accreditation at the University level, to include the SOM) and the Liaison Committee on Medical Education (LCME), which provides accreditation specifically for the SOM.

SOM Program Accreditation by the Liaison Committee on Medical Education.

Background. The LCME accreditation process is designed to certify that a medical program meets prescribed standards; and, by awarding accreditation, the LCME indicates confidence in the quality of the medical school program. The accreditation process also fosters institutional and program improvement. The SOM received provisional accreditation from the LCME, a joint activity of the Association of American Colleges (AAMC) and the Council on Medical Education of the American

Medical Association (AMA) in 1976. The SOM was fully accredited by the LCME in 1979, and has continuously maintained that status.

The SOM prepared a Self-Study during 1992 and was visited by an LCME survey team during January 11-14, 1993. On April 7, 1993, the LCME voted to continue full accreditation for seven years. The Dean was asked to submit a report to the LCME by January 1, 1995, addressing: 1) progress in curriculum reform, including decompression in the first two years; 2) the empowerment and role of the curriculum committee to review, evaluate, design, and manage the curriculum; 3) the status of filling chairs of academic departments, with special reference to the availability of space and financial resources to do so and to the energizing of education and research; and, 4) the appropriateness of enrollment size and the adequacy of clinical resources. Following the LCME request, an ongoing curriculum renewal process was initiated in June of 1993. In November of 1993, the Dean's Policy Memorandum regarding the structure and function of the curriculum committee was updated to assign responsibility to the curriculum committee in accordance with the LCME's guidance as described in Functions and Structure of a Medical School. Search committees were appointed to fill the open department chair positions. And, plans were initiated to develop third-year clerkship rotations at two additional sites. A report, submitted in December of 1994, detailed the status of progress in the four areas identified by the 1993 LCME response. The LCME accepted the report in February of 1995; and, it requested an additional report by September 1, 1996, to address the following: 1) any changes in class size stemming from the downsizing of the Uniformed Services; 2) the status of continued Federal support; 3) further progress in curricular management, evaluation, and reform; and, 4) the system and results of monitoring the equivalency of educational quality and the evaluation of students across sites of clinical education. The response, dated August 16, 1996, indicated that the class size had not been affected by the downsizing of the Uniformed Services and that Federal funding was sufficient to support the University's programs. Also, during the 1996-97 Academic Year, an additional ten percent reduction in contact hours for first and second-year students was implemented, resulting in an additional afternoon per week of student study time. In September of 1996, the LCME accepted that report; and, no further information was requested prior to the full accreditation survey scheduled for the 1999-2000 Academic Year.

The LCME Grants Continued Accreditation through 2007. Following accreditation by the LCME in April of 1993, the LCME scheduled its next review of the SOM Program for reaccreditation in November of 1999. As a precursor to that review, the Associate Dean for Medical Education coordinated an institutional Self-Study. Self-Study Committees were established during 1998, assigned topic areas, and charged to review and analyze portions of the Medical Education Database as well as other information considered relevant to their topic areas. Reports were then submitted to the Steering Committee on February 1, 1999; all reports were reviewed by both the Steering Committee and a larger LCME Task Force. All data, Self-Study reports, and the Executive Summary were submitted to the Dean during the Summer of 1999. Following the Dean's review, those materials were submitted for review to the LCME and the Survey Team Members some months prior to the Survey Team Visit. The Site Visit took place on November 14-18, 1999. Exit briefings and follow-up correspondence from the LCME suggested a successful visit and continued accreditation. Official notice from the LCME was provided on April 13, 2000: **"The School of Medicine received continued full accreditation of the educational program leading to the MD degree for a seven-year term. The next full survey will take place during the 2006-2007 academic year"** (Letter from the LCME to the USU President, dated April 13, 2000).

Excerpts from the Summary of the LCME Accreditation Report as Provided in the USU Board of Regents 2000 Report to the Secretary of Defense.

There is ample evidence that a large number of faculty and staff members had taken the self-study seriously and participated fully in the preparation of the report, which was thorough and showed meticulous attention to detail.

In reaching its decision to continue full accreditation of the medical school, the LCME identified numerous institutional strengths:

1. The School of Medicine is very successful in meeting its mission in graduating physicians who are well prepared and committed to military medicine;
2. The Dean holds a deep commitment to the values and success of the School of Medicine. He is a strong, capable leader who has been critically important in helping the school fulfill its mission;
3. The clinical curriculum is delivered in excellent military medical facilities, both locally and nationally;
4. The Department of Internal Medicine is to be commended for its success in creating a uniformly excellent clinical clerkship, comparable in quality across multiple educational sites;
5. The students are bright, academically talented, and uniformly dedicated to careers in military public service. They are consistently positive in their views toward their school and its faculty;
6. The support services provided by the Student Affairs Office are exceptional and appreciated by the students;
7. The faculty is available, interested and committed to student instruction and supervision. They work in a collegial fashion on behalf of the School of Medicine and the students; and,
8. The library, computer services, and the new simulation center are state-of-the-art, meeting the educational demands of the students for the future.

2002 Progress Report Receives Commendations from the LCME.

At its meeting on April 3-4, 2002, the Liaison Committee on Medical Education (LCME) reviewed and accepted with appreciation your progress report on the documentation of the comparability of clinical educational experiences across clerkship sites.... The system in place for documentation of the comparability of clinical educational experiences is an outstanding model for other institutions to emulate. Your next full accreditation survey is currently scheduled for the 2006-2007 Academic Year.

- **The Liaison Committee on Medical Education,** Letter to the Dean, School of Medicine, dated April 6, 2002.

In its correspondence dated April 13, 2000, the LCME requested that the Dean of the SOM submit a progress report by March 1, 2002, addressing the following items: documentation of the comparability of clinical experiences across clerkship sites; planning and documentation of resources to support ongoing curriculum design and oversight and enhanced centralized faculty control and management of the curriculum; and, planning for facility improvements for research and education, including progress in addressing the limitations in research laboratory space, office space, and adequate space for small group instruction in the first two years.

The Dean of the SOM began initiatives to enable a timely response to the LCME's request for a progress report. In late April of 2000, the Dean met with the Curriculum Committee and charged its members to develop a plan to further enhance the process of curriculum oversight and management. This new plan was implemented at the beginning of the 2000-2001 Academic Year. The Associate Dean for Clinical Affairs was directed to develop a plan for documenting comparability of clinical experiences across clerkship sites. This task was accomplished in conjunction with the SOM clinical department chairs and hospital-based faculty. The SOM Space Review Committee developed and implemented processes for the review and assessment of space utilization. Baseline data was reviewed and recommendations were provided to improve assignment and utilization of existing space. This process, together with the additional use of 20,000 square feet of laboratory space on the grounds of the National Naval Medical Center and the addition of an approved construction project (41,055 square feet) in the Medical Military Construction Program for Fiscal Year 2006, demonstrated the SOM's progress in addressing space utilization concerns. On February 25, 2002, the USU SOM provided its progress report to the LCME. On April 6, 2002, the Dean, SOM, received notice from the LCME that it had "reviewed and accepted with appreciation the progress report on documentation of the comparability of clinical educational experiences across clerkship sites, planning and documentation of resources to support curriculum design oversight, enhanced centralized faculty control, management of the curriculum, and planning for facility improvements for research and education." The LCME informed USU that the next full accreditation survey is scheduled for the 2006-2007 Academic Year.

Additional Accrediting Entities Provide Quality Assurance. In addition to the University's accreditation by the Middle States Commission on Higher Education and the SOM's accreditation by the LCME, the following professional organizations continue to authorize accreditation for the various programs and activities of the SOM: 1) the Accreditation Council for Continuing Medical Education; 2) the Council on Education for Public Health (CEPH); 3) the American Psychological Association (APA) Committee on Accreditation; and, 4) the Accreditation Board for Engineering and Technology (ABET). Also, SOM Steering Committees are actively involved with the accreditation process for two additional areas of responsibility reviewed by: 5) the American Association for the Accreditation of Laboratory Animal Care; and, 6) the Nuclear Regulatory Commission.

MILITARY UNIQUE CURRICULUM

In terms of contributions provided during the conflict (the war with Iraq), upwards of 100 of our physician graduates served with distinction in the war. Their efforts ranged from providing frontline trauma surgery for coalition forces to caring for sick and injured Iraqi citizens and enemy prisoners of war... Additional physician and nurse alumni provided rear echelon support throughout the medical evacuation system, including the critical care air transport systems and Landstuhl Regional Medical Center as well as stateside Army and Navy hospitals. Some of their efforts have been recounted in national and local newspapers and by radio and television stations, including the Washington Post, New York Times, Baltimore Sun, Wall Street Journal, Stars & Stripes, Los Angeles Times, Charlotte Observer, USA Today, Miami Herald, National Public Radio, and ABC-TV.

Most of the forward surgical teams and shock-trauma platoons deployed to the theater of operations received just-in-time battlefield skills sustainment training programs, each run by a USU alumnus.

Our students receive an extra measure of combat casualty care training in their four years at the University, especially through our Department of Military and Emergency Medicine, the only such department in the Nation... This training was critical to the success of U.S. operations.

- **Everett Alvarez, Jr., J.D., Chair, USU Board of Regents, 2003 Annual Report to the Secretary of Defense, June 30, 2003.**

The USUHS-unique training centered in preventive medicine and combat-related health care is essential to providing superior force health protection and improving the quality of life for our service members, retirees, and families. USUHS also provides a significant national service through its continuing medical education courses for military physicians in combat casualty care, tropical medicine, combat stress, disaster medicine, and the medical response to weapons of mass destruction (WMD).

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy, Testimony before the Senate Appropriations Committee, Defense Subcommittee on Defense Health, April 30, 2003.**

Recent tragic events and the current Global War on Terrorism clearly show the benefits of preparedness and training. It is gratifying to know USUHS is leading the way in preparing military health care professionals to meet current and future challenges. Please accept my appreciation and pass on a hearty “Well Done!” to your colleagues and the students for their dedicated efforts in support of our men and women in uniform.

- **General Richard B. Myers, Chairman of the Joint Chiefs of Staff, Letter to USUHS, March 29, 2002.**

General Overview. The School of Medicine is a fully accredited medical institution, which provides a year-round, four-year curriculum. This curriculum is 174 weeks in length, approximately 20 weeks longer than the average curriculum of medical schools in the United States. This expanded curriculum focuses on epidemiology, health promotion, disease prevention, tropical medicine, leadership, officership, the management of combat trauma, and combat casualty field exercises. Woven throughout the students’ entire course of study, these and other subjects focus directly on the unique requirements of career-oriented military physicians. The USU SOM military unique training includes **“approximately between 784 and 889 hours of initial military education and medical readiness training compared to that provided to the Health Professions Scholarship graduates whose training ranges from 50 to 132 hours, depending on the Service”** (General Accounting Office Report, *Military Physicians - DoD’s Medical School and Scholarship Program*, September 29, 1995, page 41).

USU Represents a Total Military Medical Educational Environment and Acculturation Process.

Among America’s 126 medical schools, USU has a mission unlike any other. Medical education in other schools focuses on the individual down to the subcellular components. This purview is only a subset of the USU perspective. In support of the warfighter, USU must take a worldwide view to include preventive medicine and atypical medical care. Since U.S. forces are expected to be deployed in every geographic and climatic region in the world, USU prepares its students for any and all circumstances.

- **USU Board of Regents, 2003 Annual Report to the Secretary of Defense, June 30, 2003, page 2.**

The USU SOM provides the Military Health System (MHS) with career-oriented medical officers who possess the knowledge, skills, and attitudes essential for effective deployment during Joint Service operations. The SOM’s principal focus is on military medicine, which involves the prevention of disease and injury; the management of combat trauma; health promotion; and, diagnosis and treatment by medical personnel who are integral to the military operations they support. This focus also involves syndromes and injuries that are either rare or unknown among non-military populations.

Military medicine requires a solid background in tropical medicine and hygiene, parasitology, and the use of epidemiologic methods and preventive medicine. **The SOM, for example, provides its medical students with approximately 130 hours of study in these areas, compared to about 13 hours found in the typical civilian medical school curriculum.** Additional knowledge in such areas as military medical intelligence, psychologic stresses of combat and trauma, the medical effects of nuclear, chemical, and biological weapons, and the medical effects of extreme environments - aerospace, undersea, tropical or desert conditions - is essential to a uniformed physician's ability to properly support his/her military commander's responsibility for troop fitness. Also critical to a military physician's focus is his or her ability to provide disease prevention and health promotion under austere conditions.

First-Year Curriculum.

Background. Four SOM Departments, Military and Emergency Medicine, Preventive Medicine and Biometrics, Medical History, and Psychiatry, share the major responsibility at USU for teaching the military unique course material; *material that is not found in the curriculum of any other medical school in the United States*. In addition to the usual first-year medical school courses, such as Anatomy, Physiology, Biochemistry and Human Behavior, students at the SOM have required courses in Military Studies, Military Medical History, Tropical Medicine (Diagnostic Parasitology and Medical Zoology), as well as Biostatistics and Epidemiology, all of which utilize military data and case studies. This provides an introduction to the scope and content of military medicine and exposes each student to all of the medical systems within the Uniformed Services. Students are focused on the delivery of preventive and treatment services in the *field* or in a deployed environment.

Overview of Military Studies. The Department of Military and Emergency Medicine is responsible for teaching the Military Studies Curriculum during the first and second years of medical school. The first course occurs during the Fall of the first year and is entitled, ***Introduction to Military Medicine***; as the course name implies, it introduces the students to military medicine through lectures and small group discussions. The content of the course includes the expectations that line officers have placed on the medical corps, the distribution and classification of combat casualties, the impact of disease and non-battle injuries on readiness, and the career patterns of the military medical officer. The remainder of this course deals with the echelon system and evolving modular concepts of battlefield health care and an introduction to the areas of chemical, biological, radiological, nuclear, and high explosive (CBRNE) warfare.

During the second instructional period (Winter) of the first year, the students learn the basic skills of prehospital care in a course entitled, ***Combat Medical Skills***. This portion of the curriculum exposes the students to the level of medical training of the basic medic and introduces, at an early time, those skills which must be built upon and expanded during subsequent medical training. ***Military Applied Physiology*** is presented during the third instructional period (Spring) of the first year. While this course parallels the traditional Physiology Course, it also reinforces the concept that was introduced during the Fall, that military medicine is a form of occupational/environmental medicine. The physiologic responses to stressors common to the military environment such as cold, heat, radiation, dysbarism, altitude sickness, and exercise are presented in the context of their impact upon readiness.

By the end of the first academic year, each student has completed course work and experiences considerably greater than those required by the Basic Medical Officer Course for any of the Uniformed Services. The first academic year spans 40 weeks of instruction within the SOM, one week of operational medicine, and five weeks of military medical field studies.

Operation Kerkesner.

Kerkesner focuses on introducing USUHS students to exactly the (military field and preventive medicine) skills that they need to survive in combat... Weapons training, map reading, basic leadership and NBC defense. I saw that medical officers needed these skills time and time again in Iraq.

- **Lieutenant Colonel Kevin Riley, MS, USAF, CENTCOM Special Operations Command Surgeon for Operation Iraqi Freedom, Correspondence to USU, September 15, 2003.**

I just returned from a *fantastic* morning at Quantico observing Operation Kerkesner. I had no idea that the training had reached such a high state of sophistication... Some of my observations included the following: how integrated and well thought out the sequence and content of the training was; how those students with prior military time helped the uninitiated ones so well; how professional and competent the Marine NCO cadre was. What a powerful lesson for those students to see how the NCO Corps truly is the backbone of the force; how impressed the two Thai Army officers and Japanese Naval officer were as they observed the training. USUHS no doubt is the global benchmark model; how the students praised this experience. Not one I spoke with had a negative thing to say.

- **Colonel Frederick J. Erdtmann, MC, USA, Hospital Commander, Walter Reed Army Medical Center, Letter to the USU President, June 25, 1999.**

Between the first and second year, all students participate in the required five-week course, ***Military Medical Field Studies*** (MMFS). The MMFS Course begins with instruction in military field skills, which include: operating a radio; navigating the land in daylight and at night; using preventive medicine principles; and, protecting oneself against CBRNE attacks. The knowledge from this block of instruction prepares the students to successfully complete a one-week leadership laboratory exercise at the Quantico Marine Corps Base. This exercise, ***Operation Kerkesner*** (named after a former Marine faculty member of USU), challenges the students' ability to overcome field problems through their own initiative and team work.

The field exercise focuses on small unit operations in a field environment. The class of 165 students is divided into four platoons, which are further divided into eight person squads. Evaluators from the Department of Military and Emergency Medicine and platoon advisors from USU and Quantico live with the students and accompany them in all scenarios. Student leadership is rotated to place each student in a leadership position at the squad or platoon level with all attendant responsibilities. The schedule includes operational scenarios that emphasize virtually all major points covered in the Military Studies I Course. Student leaders must know the medical threats (i.e., dehydration, insect-borne disease,

sanitation, injury prevention, CBRNE avoidance and decontamination, and physical and psychological stress) they may face and demonstrate how they would control these medical problems in their units.

This course initiates the student to the field skills and small unit leadership experience required for the successful completion of *Operation Bushmaster* during the Military Contingency Medicine Course in the fourth year. Operation Kerkesner has been visited by a variety of active and reserve United States military medical personnel and has served as a model for the Navy's Rapid Deployment Medical Force (RADMF) Training Program. Elements of the course have been used in Public Health Service Disaster Medical Assistance Team (DMAT) Training. Foreign military medical personnel have also attended the course to gain material to enhance their own training programs (i.e., the United Kingdom, France, Israel, Japan, Singapore, Thailand, and Mexico).

Non-Medical Operational Assignments. The field exercise is followed by the final portion of Military Medical Field Studies. During this time, prior service students may elect to participate in research, work with a mentor, or attend a military qualification school such as: Basic Airborne Training; Basic Air Assault School; Survival, Evasion, Resistance, and Escape (SERE) School Training; Underwater Operations (SCUBA); or, Expert Field Medical Badge (EFMB). Those students without prior service experience are required to spend three weeks with an operational unit in their parent Service. Students may be afloat on a Navy ship, with a Marine Battalion, with noncommissioned officers (NCOs), or with other junior officers learning the military occupational environment and developing a *non-medical* perspective on military medicine. Coordinators at each site report on the students' performance to the Department of Military and Emergency Medicine; and, each student produces a daily log and a written report detailing his/her experience and lessons learned. During this same period, twenty-five to thirty-five percent of each class will elect and successfully complete, one of the military qualification schools listed above.

Special Programs in Operational Medicine Offered by the Casualty Care Research Center. The Casualty Care Research Center (CCRC) is a division of the SOM Department of Military and Emergency Medicine. The CCRC, created in July of 1989, is staffed by military and civilian physicians and scientists. The center provides USU medical students and other medical personnel disciplined training and research experiences in combat casualty care, medical counterterrorism, injury epidemiology, trauma management and other related areas. USU's medical students attend the CCRC programs either as an elective during their fourth year or as part of their summer experience between the first and second years of medical school.

During 2003, six students between their first and second year of medical school, selected an area of interest and worked with CCRC faculty members on individualized courses of research and study. The students were also divided into groups; each group was responsible for completing a research effort and for a presentation of findings. Students attended one or more of the following CCRC training opportunities:

1. ***Emergency Medical Technician-Tactical (EMT-T) Course.*** The EMT-T Course was developed to provide relevant training to medical providers who work within the law enforcement special operations community. Topics in the EMT-T Program include: clandestine drug laboratory raids; emergency medical care in barricade situations; care under fire; forensic science during patient care; medical operations, planning and medical intelligence; wounding effects of weapons and booby traps; special medical gear for tactical operations; personal protective gear; special needs for extended operations; preventive medicine; and, injury control;

2. ***Emergency Medical Technician - Tactical Advanced Course.*** The Tactical Advanced Course includes the following topics: advanced technology applications in the remote assessment methodology; legal concepts and moot court; individual health care concepts; concepts in crisis intervention; sleep/wake cycle management; emerging issues in chemical restraint; operational dermatology; management of training injuries; nutrition and fitness for tactical teams; and, less lethal weapons systems; and,

3. ***Weapons of Mass Destruction (WMD) Training Program.*** The Center offers a variety of training programs in the area of WMD to include: Out-of-Hospital Response Training; and, a Health Care Facilities Course. Topics of instruction include: identifying potential chemical-biological-radiological-nuclear (CBRN) devices; threat recognition and evaluation; formulating a building response/evacuation plan; the role of quarantine and isolating exposed individuals; psychological effects of a WMD incident; and, principles of hasty decontamination.

Second-Year Curriculum.

Extensive Hours of Preventive Medicine Training. During the second year, besides Pathology, Microbiology, Pharmacology, Ethics, Human Behavior, Introduction to Clinical Medicine and Physical Diagnosis, students have additional hours of preventive medicine, including: an introduction to operational (field) preventive medicine; health promotion in the military; physical fitness programs, policies, and implementation strategies; environmental and occupational health; and, health services administration. On October 3, 2001, the Dean, SOM, issued a revised policy directing that *all second-year medical students must certify as Basic Life Support (BLS) providers at the “C” level.* The certification is in effect for two years and is provided during the sophomore year to maintain certification through May of the senior year. The Department of Military and Emergency Medicine schedules BLS certification sessions for the second-year students; however, students may elect to certify through officially approved off-campus courses under the auspices of the American Heart Association or the American Red Cross. These courses must be at the “C” level, also known as *the health care provider level*; students must be certified prior to the beginning of their third-year clerkships.

Military Studies. The second-year ***Course in Military Studies***, conducted by the Department of Military and Emergency Medicine, focuses on two general areas: the science base for the practice of military medicine (wound ballistics, extensive background on conventional and unconventional weapons effects, protective equipment, and decontamination procedures) and the command-and-staff functions of military medicine in Joint Commands (medical planning, medical logistics, medical evacuation systems, and blood programs).

The second academic year spans 35 weeks of instruction within the SOM. After final examinations, students prepare for the ***United States Medical Licensing Examination (USMLE) Step 1***, which is the first of three examinations in the process of becoming a licensed physician. The current second-year class will complete the computer-based testing (CBT) for the USMLE, Step 1, between May and June of 2004, prior to beginning the first rotation of their third year. The Office of Student Affairs reported that 90.1 percent of the USU students in the Class of 2004 passed the examination on their first attempt. The national average percentage pass for 2002 was 90 percent.

Second-Year Medical Ethics Course. The second year, ***Medical Ethics Course: Ethical, Legal and Social Issues in Medicine*** was initiated during the Summer of 1977. The course, taken by all medical students, provides extensive material directly related to military medicine including the special concerns with sending soldiers back to combat, treatment of prisoners and civilians, and limitations imposed by the Geneva Convention. A new issue posed this year was whether treatment of prisoners who had been terrorists should be any different from that of prisoners who had been former enemy soldiers fighting for countries that had signed the Geneva Convention. Other material stresses the resolution of hospital-based ethical problems in Federal institutions.

A wide range of speakers is annually provided during the course: **Gordon Livingston**, a local psychiatrist and West Point Graduate, shares lessons learned during the Vietnam Conflict; and, **Jon Spelman**, an actor, presents a dramatic performance of the play, *Frankenstein*, giving the students the

opportunity to learn how they can use the arts to increase their awareness of the nuances of human emotions, as in this case, of research participants.

There are four major military issues that all USU students address: 1) Military Medical Triage. The students learn that the practice of military medical triage sometimes departs from traditional civilian medical procedures and that the top priority may be to further the military mission. The students discuss how the varying priorities may be necessary to save extensive lives, both military and civilian; 2) Captured Enemy Service Persons. The USU students learn that if the captured enemy is ill or injured, he/she is to be regarded as a patient. There is no option for physicians or any service persons to mistreat prisoners or to treat them *less equally* for revenge or military gain; 3) Exploitation of Vulnerable Patients. In this session, the students learn that in medicine, physicians should never exploit vulnerable patients for military gain; and, 4) Self-Incriminating Information. In this final area, students are instructed that the two primary tasks of military physicians are to keep their patients healthy and to provide commanders with accurate information regarding the health of their patients and that these tasks take precedence over acting as surrogate investigators to help enforce the law.

Over 150 faculty from USU, NNMC, WRAMC, and other distantly located facilities led discussions on these and other issues with small groups of students. The final lecture, during both 1999 and 2000, was given by **Patricia Heberer**, an historian at the Holocaust Museum. In this year's session, the students viewed a film actually shown to the German public by the Nazi Government during World War II to justify policies of euthanasia for selected patient groups such as those who had severe mental illness. The students learned that all physicians are susceptible to immoral behavior and that they must avoid the mistakes of the past.

Third-Year Curriculum.

Overview. The third-year curriculum consists of clerkships in the principal specialties of medicine. Much of the instruction is provided by uniformed clinical faculty with an emphasis on teaching the special military relevance of the various clinical experiences. Of special note are the military clinical settings for instruction (military tertiary medical centers, military community hospitals, military outpatient ambulatory care clinics, and troop dispensaries on active military bases) and the patient population, which includes active duty personnel presenting diseases and injuries incurred during both training and combat deployments.

As a part of their training and work during their clerkships, USU SOM third (and fourth-year students) provide hundreds of thousands of hours of patient care related services in the MHS hospitals during each calendar year. Such services include: examination of patients; providing post-operative care; organization and maintenance of the completion of the medical history and physical examinations of patients; assistance at surgery and the delivery of newborns; and, updating progress notes in patient records. These services, performed by USU medical students in a supervised setting, provide necessary and important support in the provision of quality medical care to the men, women, and children receiving treatment throughout the MHS.

All SOM departments are providing a clinical experience within the ambulatory setting. The ambulatory services of all departments have grown significantly within the past eight years. The Department of Medicine has taken the lead and devoted extensive resources to the planning, development, and implementation of a comprehensive ambulatory teaching experience. The department's program and its faculty have become nationally recognized for accomplishments in this area; and, numerous publications in peer-reviewed journals and presentations have resulted.

Clerkships Represent the Entire Spectrum of the MHS. USU medical students complete their third and fourth-year clinical clerkships at over 22 military hospitals, representing the entire spectrum of the Military Health System (MHS). The third-year class of approximately 165 students has eight required clinical clerkship rotations of six weeks each, for a total of 1,320 third-year rotations: Family Practice (six weeks); Obstetrics/Gynecology (six weeks); Pediatrics (six weeks); Psychiatry (six weeks); Internal Medicine (two six-week sessions); and, Surgery (two six-week sessions). Five of the USU SOM academic departments - Medicine, Surgery, Obstetrics and Gynecology, Pediatrics, and Psychiatry - use the Walter Reed Army Medical Center and the National Naval Medical Center as major clinical instructional sites.

The following teaching hospitals have affiliation agreements with the USU SOM: 1) **United States Army - (7)** Walter Reed Army Medical Center, Washington, D.C.; Brooke Army Medical Center, San Antonio, Texas; Tripler Army Medical Center, Hawaii; Madigan Army Medical Center, Tacoma, Washington; Eisenhower Army Medical Center, Fort Gordon, Georgia; William Beaumont Army Medical Center, El Paso, Texas; Womack Army Medical Center, Fort Bragg, North Carolina; 2) **United States Navy - (3)** National Naval Medical Center, Bethesda, Maryland; Naval Hospital, Portsmouth, Virginia; Naval Hospital, San Diego, California; and, 3) **United States Air Force - (6)** Malcolm Grow Medical

Center, Andrews Air Force Base, Maryland; Wilford Hall Medical Center, Lackland, Texas; USAF Medical Center, Wright Patterson Air Force Base, Ohio; USAF Medical Center, Keesler Air Force Base; David Grant Medical Center, Travis Air Force Base, California; and, USAF 3rd Medical Group Regional Hospital, Elmendorf, Alaska. In addition, USU students rotate through the following Medical Centers or Community Hospitals for at least one of their required specialty clerkships: 1) **United States Army - (3)** DeWitt Army Community Hospital, Fort Belvoir, Virginia; Martin Army Community Hospital, Fort Benning, Georgia; Darnall Army Community Hospital, Fort Hood, Texas; 2) **United States Navy - (2)** Naval Hospital, Jacksonville, Florida; Naval Hospital, Pensacola, Florida; and, 3) **United States Air Force - (1)** USAF 96th Medical Group Hospital, Eglin Air Force Base, Florida.

The SOM Associate Dean for Clinical Affairs (ADA) provides oversight for relationships and interactions between the SOM and its clinical teaching sites. Issues of concern from all parties can now be readily addressed as changes in the military health care delivery system are implemented. More specifically, the ADA visits the major Military Medical Centers on a regular basis and reevaluates and updates the SOM's affiliation agreements with its major teaching affiliates; this ensures that the agreements are consistent with the requirements of the Liaison Committee on Medical Education (LCME) and with the current needs of the Military Medical Centers, the Military Services, and the University. This process has ensured that clear routes of communication exist and that areas of mutual interest are appropriately defined and addressed, all of which has resulted in an overall improved relationship between the SOM and its numerous clinical sites. During 2003, for example, the ADA conducted site visits to: the Portsmouth Naval Medical Center in Virginia; the San Diego Naval Medical Center in California; the National Naval Medical Center in Bethesda, Maryland; the Madigan Army Medical Center in Tacoma, Washington; the William Beaumont Army Medical Center in El Paso, Texas; and, the Tripler Army Medical Center in Hawaii. Affiliation agreements were updated and concluded with all of the above, as well as with the 81st Medical Group at the Keesler Air Force Medical Center (visited during 2002).

The Department of Obstetrics and Gynecology Successfully Utilizes Standardized Patients to Assure Mastery of Required Knowledge, Skills, and Professional Behaviors. Educators in Obstetrics and Gynecology and accreditation bodies have been concerned that a medical student may complete a required core clinical clerkship without the assurance of the mastery of essential clinical skills or the demonstration of the essential components of professionalism. The SOM Department of Obstetrics and Gynecology initiated a program of assessment utilizing standardized patients (trained actor-patients) in an Objective Structured Clinical Exam (OSCE) format with one-on-one faculty supervision at the end of each core six-week clinical clerkship. These sessions are conducted at USU's Medical Simulation Center for clerkships in the National Capital Area; and, sessions are provided in the Obstetrics and Gynecology Clinics located at the integrated Wilford Hall USAF Medical Center in Lackland, Texas; the Brooke Army Medical Center in San Antonio, Texas; and, at the Tripler Army Medical Center in Hawaii. As other clinical programs have done, the Department can now assure that the students have been observed correctly performing essential techniques.

The following procedures are performed utilizing standardized patients during the OSCE: the clinical breast examination; the speculum pelvic examination; the bimanual pelvic examination; an interview of the adolescent gynecologic patient; and, an interview of the menopausal patient. Another innovation is the provision of direct, on-the-spot feedback to the medical students from the standardized

patients and the faculty supervisors both at the conclusion of each of the essential techniques, or procedures, listed above, and following the final examination sessions. The standardized patients and faculty reinforce the skills and also provide guidance for improvement.

Feedback from the students has been extremely positive; they understand the importance of being able to exhibit the required skills and behaviors; and, they particularly appreciate the immediate guidance and the opportunity to improve their performance of these essential skills. As a consequence, this clerkship experience leaves a permanent impression on the students, which eventually benefits their future patients during subsequent clinical encounters.

An Innovative Clinical Clerkship Management Tool Utilizing Palm-Type, Hand-Held Computer Devices. The Department of Obstetrics and Gynecology has also led the development and implementation of an innovative clinical clerkship management tool utilizing palm-type, hand-held computer devices for medical student performance evaluations. Beginning in 2000, the residents in the USU, NNMC, and WRAMC-sponsored Uniformed Services Residency in Obstetrics and Gynecology Program have utilized a hand-held device operating system application, which was developed by faculty in the USU Department to establish a cumulative data base encompassing the residents' individual patient care management experiences. On a weekly basis, each resident downloads his or her data to the main department computer through a *hot sync* function. This allows the program director to have timely, on-going access to the experiences of all of the residents. During 2003, trainees were enabled to report their experiences at remote sites by utilizing a web-based program. The positive impact of this program was published in the peer-reviewed premier journal, Obstetrics and Gynecology, and was showcased in a special session at the Annual Meeting of the Council on Resident Education in Obstetrics and Gynecology in March of 2001. Since the residents are the primary teaching interface with the USU medical students, a new program has been developed in the SOM Department so that the residents can enter their assessments of the performance of the USU medical students who are rotating on their respective services. When the residents download their own patient care experiences on a weekly basis, their evaluations of the USU medical students are automatically downloaded as well. The Clinical Clerkship Director then has ready access to the progress of all of the medical students in a format that is automatically updated each week. Data for all students in the Department of Obstetrics and Gynecology is downloaded weekly through a secure Internet site so that the Clerkship Coordinator can monitor the progress of all students at all sites. ***This process helped USU to meet the LCME requirements for uniform experience and assessment for all USU medical students across all sites.***

The Department of Obstetrics and Gynecology Implements the Use of Simulation Laboratories. During 2003, the Department of Obstetrics and Gynecology implemented a skills curriculum for residents and medical students, which included a life-sized birth simulator. The simulator is located in a dedicated, mock-up delivery room in the Department's Education Unit, which is located in Building 1 at the National Naval Medical Center. **Colonel Andrew Satin, USAF, MC, Professor and Chair of Obstetrics and Gynecology**, designed a curriculum employing the use of the birth simulator in the instruction of medical students during their core third-year clerkship and residents through their four years of training. Divided into small groups, the students each have an opportunity, under direct faculty supervision, to conduct

a virtual, life-like *normal birth* so that they can gain the knowledge, skills, and confidence required of them during actual clinical care labor and delivery settings. The medical students have been universally enthusiastic in their appreciation of this novel instructional opportunity.

The resident curriculum has been designed to instruct more advanced residents in the principles of obstetric forceps applications and vacuum-assisted delivery, breech delivery, and shoulder dystocia management. Measurable increases in knowledge, skills, confidence, and overall proficiency of the residents have resulted; and, the program has been presented at several national professional forums.

The American Board of Obstetrics and Gynecology, among other organizations and institutions, has taken considerable interest in the further evolution of these instructional programs. Doctor Satin and the Department faculty were recently selected to present a Workshop of this novel program to the Association of Professors of Gynecology and Obstetrics.

Pediatric Clinical Rotation - Experiences with Exceptional Family Members. Several years ago, the Pediatric Clinical Rotation initiated home visits to families with children with special needs. This program has grown to include a set of educational experiences integrated across the four years of medical school. In the first year, medical students have an opportunity, coordinated with the Human Context in Medicine Course, to visit families or adult patients with special needs. In the second year, the Bioethics Course opens with a three-hour session that includes a lecture, film, and small-group discussions with parents whose children have been critically ill during the first year or two of their lives. In addition to the Pediatric Home Visit in the third year, the Pediatric Clinical Rotation includes two sessions in which faculty members and parents collaboratively offer insights about developmental issues of childhood and provide practice and feedback about pediatric medical interviews. The Family Medicine Clinical Rotation now teaches about advocating for patients and families through standardized patient experiences, a three-and-a-half hour session taught collaboratively with adults with chronic medical conditions, and a home visit that focuses on medical and community resources. A Pediatric Research Elective in the fourth year provides an opportunity for students to: design and initiate research that involves parents and patients for providing insights about health care experiences; plan research that incorporates patients and families; and, respond to surveys and interviews.

With continued funding from the Health Resources Services Administration, Department of Health and Human Services, **Janice L. Hanson, Ph.D., Research Assistant Professor, USU SOM Department of Pediatrics**, and **Colonel Virginia Randall, MC, USA, Associate Professor, USU SOM Department of Pediatrics**, furthered the involvement of patients and family members as advisors and co-teachers in medical education. These advisors have chronic medical conditions and/or disabilities, or have a child or other family member with a special need. They share their experiences with medical students during all four years of the curriculum. A new activity developed with input from these advisors presents pediatric applications of evidence-based medicine. Doctor Hanson convened focus groups of the advisors to develop descriptions of physicians' professionalism from the perspective of patients and parents, with plans to develop tools to teach and evaluate professionalism among medical students.

Pediatric Cardiology Module - Cardiac Auscultation at the Simulation Center. Beginning in 2000, an innovative case-based, interactive scenario in pediatric cardiology was introduced to the third-year medical student pediatric clerkship through the advanced technologies of the National Capital Area Medical Simulation Center. This teaching module is an interactive session between the instructor and medical students with discussions on the events of the cardiac cycle and a demonstration of their relationship to heart sounds and murmurs in the normal child as compared to the child with congenital heart disease. The instructor's presentation is supported by slide presentations and the use of computer software. The demonstration of heart sounds and murmurs is based on a CD-ROM, which contains audio files of actual pediatric cardiac sounds as well as other visual resources and are available to each student at his/her individual work station.

The teaching objective is for the student to recognize the normal clinical findings in the cardiovascular examination of the child and to differentiate between physiologic and pathologic sounds and murmurs. The teaching module is expected to complement the clinical experience during the clerkship and to help develop physical diagnostic skills. This educational experience has been presented at the National Meeting of the Council on Medical Student Education in Pediatrics. To date, 222 medical students have received this educational intervention as part of their third-year pediatric clerkship. The students' evaluations have been very positive as expressed in their post-clerkship critiques.

Patient Simulation Laboratory - A Collaborative Effort.

Invited Presentations:

- **American Society of Anesthesiology 2003, *Weapons of Mass Destruction Workshop*, San Francisco, California, October 15, 2003.**
- **International Association of Medical Science Educators, *Patient Simulation Applied to Weapons of Mass Destruction*, Washington, D.C., July 21, 2003.**
- **Internet2 Annual Members Meeting, *Health and Medicine Applications*, Washington, D.C., April 25, 2003.**
- **Center of Excellence for Remote and Medically Under-Served Areas, *Distant WMD/T Diagnosis and Treatment via Tele-Simulation Between USU and St. Francis University* (Pennsylvania), March 14, 2003.**

A collaborative project between the National Naval Medical Center's Department of Anesthesiology and two USU SOM Departments: Anesthesiology; and, Anatomy, Physiology, and Genetics led to the development, in 1997, of a fully interactive medical training laboratory at USU: the Patient Simulation Laboratory (PSL). As mannequin-based simulation was new not only to USU, but also quite rare, in 1997, throughout the world of medical education, almost every program offered

by the USU PSL was developed and implemented by the USU PSL staff. The PSL has been in daily use since its first course offering. This instructional facility supports training in combat casualty care, anesthesia, critical care, trauma, and emergency medicine. Students gain experience in recognizing problems, developing decision-making skills, and refining techniques and procedures. During 2003, the PSL provided over 600 hours of University-wide support for course offerings.

The University has access to a total of 12 mannequins that span the range of ages from newborn to adult, both male and female (four at the USU Military Medical Simulation Center (SIMCEN) located at Forest Glen; two at the Naval Medical Education Training Command located in Building 1, at the National Naval Medical Center in Bethesda, Maryland; and, six mannequins at the PSL). There are scores of customizable *events* ranging from anaphylaxis to ventricular fibrillation that can be assigned to the simulated patients. The *mannequin patient* presents a wide range of responses to the following computer-controlled scenarios: lung ventilation visibly detectable by chest movement; eye lid open/closure; pupil dilation/contraction; palpable pulses; arm motion; thumb twitch; tongue and airway swelling; and, urination. In addition, the *mannequin patient* responds to the following student implemented actions: drug and gas administration; chest tube placement; needle thoracentesis; pericardiocentesis; and, cardiac pulmonary resuscitation. Every kind of signal that can be captured from a *real* patient can be displayed and analyzed on the Clinical Monitor. Patient Simulators typically have over two dozen predefined *patients*, each with unique underlying characteristics and cardiovascular, pulmonary, and metabolic attributes. These patient profiles are modified and new *patients* are constructed to match the teaching objective. The patient simulator can present a wide variety of medical problems and altered physiological states as well as difficult airway management and equipment set-up and/or malfunction. ***In addition, the simulators present scenarios applicable to combat casualty care, anesthesia, critical care, trauma, and emergency medicine.***

The drug models include intravenous and inhaled anesthetics, neuromuscular blockers, cardiovascular agents, and a wide range of infusion pharmaceuticals, which affect the simulators as they would human patients. The automated drug recognition system provides for realistic drug administration; each syringe is equipped with a unique computer chip that represents a specific drug. Thus, the instructor can: select the type of a case and adjust the speed and severity to match the ability level of the student; review and/or repeat clinical situations until a desired level of performance is accomplished (a lesson can be *paused* to provide the instructor the opportunity to give the student feedback); evaluate student clinical decision-making judgments; schedule training at convenient times; and, use the simulator as a research tool for training or evaluation methodologies.

During 2003, the patient simulators, located in the USU SOM Department of Anesthesiology, were used to train three primary groups: medical students; graduate nursing students, and, anesthesia residents. In addition, training was also provided to the following TriService, post-graduate military medical readiness groups: The Army Medical Center and School from the Walter Reed Army Medical Center; the Air Force Critical Care Air Transport Teams from the Malcolm Grow Medical Center; and, USNS COMFORT clinical staff from the National Naval Medical Center.

The PSL has completed its sixth year of teaching the first-year SOM students a simulated cardiovascular reflex scenario as part of their Physiology Course; each year, the SOM students have expressed strong enthusiasm for this simulation presentation. The simulated patient definitely adds

a clinical context to some of the physiological and pharmacological principles presented to both the medical and nursing students. In addition to these hands-on small group (eight students) simulations, the PSL provides live, interactive distance education presentations to the second-year SOM students for illustrating simulated, clinical examples during their Pharmacology lectures. Thus, the PSL brings the hospital to the students through a newly installed Advanced Distance Education Network (ADEN), designed by the PSL staff.

During their ***third-year anesthesia rotation***, SOM medical students are instructed in the basic fundamentals of anesthesia and the role of the anesthesiologist in surgery. They learn to connect a patient to external life support sources, such as an oxygen mask, a ventilator, or manual ventilation via endotracheal intubation. For the first time, USU medical students combine the lessons learned about the physiology of gas exchange and physiologic and pharmacologic responses, while actually performing the procedures and administering anesthesia on the patient simulator, without putting a patient, or themselves, at risk.

During 2001, 2002 and 2003, the USU PSL team received the *First Place Research Award* for their presentations at the Society for Technology in Anesthesia International Meeting on Medical Simulation. The PSL study shows a remarkable reduction in error detection time, when doctors view clinical monitor data via a prototype Head Mounted Display. This concept of providing immediately accessible critical vital sign data to clinicians via a Head Mounted Display is the basis of a patent application by the PSL team; PSL's winning presentation showed acceptance by surgeons to wearing a Head Mounted Display in the operating room. The PSL, in conjunction with the USU SOM Department of Anesthesia, also presented a continuing medical education (CME)-accredited *Weapons of Mass Destruction Workshop*, at the American Society for Anesthesiology, in San Francisco, California, on October 15, 2003. This presentation was enthusiastically received and has led to requests for book chapters from the PSL faculty on the web response to WMD.

An Innovative Introduction to the Surgical Clerkship. The third-year surgical clerkship is preceded by a three-day introduction to clinical models and operative procedures utilizing the National Capital Medical Simulation Center (SIMCEN) and the animal surgical facilities in the USU Department of Laboratory Medicine. This innovative and comprehensive approach, which occurs with third-year SOM students every six weeks, familiarizes the students with patient interactions associated with the presentation of common surgical illnesses as well as introducing various surgical techniques, priorities, equipment and procedures. The advanced technologies of the SIMCEN employ live patient models well versed in specific disease histories and symptoms. Disease scenarios include common problems such as pancreatitis, appendicitis, ectopic pregnancy, and gallbladder disease. Students perform comprehensive, focused histories and physicals on two to three *patients* under real-time observation by a faculty-teaching surgeon. The encounter is also taped for interactive student-teacher reviews during small group discussions of techniques and performance. In addition to the patient encounters, separate laboratories are held to teach and perform knot tying, endotracheal intubation and ultrasound fast examination techniques on mannequins. A human patient simulator is used to teach acute trauma care, utilizing various scenarios creating positive and negative outcomes to specific student treatment choices. There is also a virtual reality laboratory for the performance of technical skills including suturing and cricothyroidotomy. The unique experience offered by the two days in the live animal laboratory introduces students to actual operative procedures on an anesthetized animal under sterile conditions. The instrumentation, scrub

procedures, apparel and routine are true replicas of actual clinical hospital settings. Students are assigned in groups of three or four to a certified teaching surgeon for the entire two days. Abdominal procedures including appendectomy, splenectomy, bowel resection and cholecystectomy are carried out with each student serving as surgeon, scrub technician, and assistant. On the second day, the thoracic phase is carried out including a pneumonectomy, pericardial window, aortotomy, and chest tube placement. This intense three-day session prepares the student anatomically, physiologically and procedurally for the clinical rotation. The clinical rotations include the standard third-year clerkship in general surgery and surgical specialties. Small group mentoring preceptorships are held weekly as well as Distinguished Professor Lectureships, which are held bi-monthly.

Simulation Center Technologies Utilized During the Surgery Rotation. The advanced technologies of the National Capital Medical Simulation Center are being used in simultaneous fashion every six weeks to introduce the third-year medical students to their surgery rotations. The students are provided both an introductory discussion and a lecture regarding an abdominal surgery laboratory to be held the following day. The patient actors are used to provide an hour-long, three-patient opportunity to elicit, from the medical students, a medical history; and, the patient actors enable the medical students to perform a focused physical examination for a variety of acute abdominal diseases (e.g., appendicitis, pancreatitis, gallbladder disease, ectopic pregnancy, and others). These encounters are videotaped and the tapes are reviewed with the teaching surgeon during the subsequent hour. A suturing and knot-tying laboratory is held in the computer laboratory using both web-based and senior surgeon instruction. Plastic mechanical models (Laerdal/MPL) are used to teach such skills as endotracheal intubation, chest tube insertion, and surgical airway. The human patient simulator (MEDSIM) is used to teach the best approach to simple clinical problems such as hypotension or hypoxemia. The virtual reality laboratory experience includes starting an IV (HT Medical), creating an anastomosis (BDI), and performing bronchoscopy (HT Medical). Two additional simulators are used to teach emergency trauma procedures: pericardiocentesis and diagnostic peritoneal lavage. These last two trauma skills simulator technologies were developed at the National Capital Area Medical Simulation Center. Through the use of this multi-modality facility, the experience of medical students can be enhanced so that the first time some of the above-described problems or procedures are encountered, it will not be with a live patient, but rather with the most appropriate simulator. Approaches, such as those provided by the advanced technologies of the Simulation Center, are expected to minimize the possibility of medical errors.

Fourth-Year Curriculum.

Yours is the only medical school in America which trains physicians to be ready for duty on the bottom of the ocean or on the surface of the Moon, and any place in between... As students, you went through one of the most rigorous programs in the country... You prepared yourself to treat patients anywhere in the world, under any circumstances.

- **President Ronald Reagan**, Commencement Address, SOM Class of 1987.

Overview. The fourth academic year begins with a one-week ***Military Preventive Medicine Course***. Early in the fourth year, approximately 165 students also take the USMLE Step 2. The 165 fourth-year students have ten four-week blocks for 1,650 rotations. Students must complete an eight week subinternship as well as the following four-week clerkships: Military Contingency Medicine; Military Emergency Medicine; and, Neurology. The senior year concludes with a one-week ***Transition to Residency Course***.

Military Medicine. The Department of Military and Emergency Medicine conducts two courses in the senior year (***MCM*** and ***MEM***) that are required for graduation from the SOM. The ***Military Contingency Medicine (MCM) Course*** focuses on medicine in a deployed environment and in response to a terrorist attack. The first three weeks of the course are currently devoted to reviewing and expanding basic concepts and manual skills learned in the first two years of Military Studies. While the ***Combat Medical Skills Course*** included first-aid at the medic level for the first-year medical students, the ***Advanced Trauma Life Support (ATLS) Course*** is taught at the physician level to the fourth-year students. The USU SOM is one of only three medical schools in the United States that requires ATLS for all students. Additional topics in the first three weeks include the management of combat trauma, chemical-biological-radiological (CBR) exposure, environmental injuries, and combat stress. Special sections focus on triage, women's issues, and working with non-governmental organizations in disaster relief or humanitarian assistance missions. Integration with national strategic goals, operational missions, and tactical objectives is emphasized in all aspects of the course. Incorporated into the MCM curriculum is ***Introduction to Emergency Medicine (EM)***. The problem-solving techniques used by EM physicians are taught and practiced. This prepares the SOM students to excel in a four-week Emergency Medicine clerkship entitled ***Military Emergency Medicine (MEM)*** - described below). The final week of MCM is dedicated to ***Operation Bushmaster*** where the lessons learned can be applied in multiple simulated situations during a field training exercise.

Operation Bushmaster.

I learned that I can't think only in the present, that I have to think ahead. Bushmaster gives those with no prior experience a taste of what is ahead in field medicine.

- **2nd Lieutenant Cristin Kiley, USA, The USU Quarterly, Changes to Operation Bushmaster, Winter Issue, 2002, page 6.**

The field training exercise, ***Operation Bushmaster***, uses the constructs of two United States Army Battalion Aid Stations, one United States Marine Corps Battalion Aid Station, and, new for 2003, the addition of an Air Force Expeditionary Medical Support System (EMEDS) Basic to allow students to practice skills learned in the *Military Contingency Medicine Course* and throughout the *military and traditional* SOM curriculum. These treatment facilities are designed to represent first- and second-echelon levels of care within the forward battlefield environment. Real-world and notional modular teams have been integrated into the scenarios to reflect current medical doctrine and deployment practices for all Services. Each of the Services provides equipment and medical personnel to provide students experience with front-line medical evacuation procedures and platforms. ***The scenario reflects a Joint Task Force (JTF) deployment involving all four Services and incorporates the updated policies established by the Secretary of Defense.*** The students are placed in a resource-restricted environment and are forced to coordinate with theater assets and their *sister* Services in order to accomplish their missions and deliver optimal patient care.

The students practice land navigation, radio communication and other field training, triage and combat casualty care, to include site selection and establishment of their respective medical element. Drawing on their classroom lectures and teachings, SOM students are encouraged to develop novel solutions to many operational scenarios and problems. They also are forced to navigate the different evacuation requirements and procedures that each Service utilizes within the battlefield environment. ***This exposure will allow the USU SOM students to quickly integrate themselves into a future joint combat environment.*** Students occupy at least three leadership and medical evaluation positions throughout the field operation. They are evaluated on the following: medical proficiency while handling dozens of simulated casualties; leadership skills under demanding and stressful conditions; mission accomplishment and focus; and, teamwork. Drawing on all that the students have learned while at USU, Operation Bushmaster is viewed as the capstone exercise of their military medical education, allowing them to hone their skills in a simulated combat environment.

Operation Bushmaster is conducted three times each academic year, in September, November and January. One-third of the class attends each week-long session of Bushmaster at Camp Bullis in San Antonio, Texas. In a recent issue of the USU Quarterly, **Major Troy Johnson, MC, USA, USU SOM Class of 1995**, was interviewed reference his position as the Academic Director for Bushmaster. Within 18 months following his graduation from USU, Major Johnson, a flight surgeon with a special operations unit, was faced with a real-world mass casualty situation overseas involving the United States Marines who did not have a physician with their unit. Major Johnson had to provide care within a Marine Battalion Aid Station; he knew what to do, due to the training he had received at USU, and was

subsequently decorated for his actions. As mentioned above, the USU students are now trained in the Marine Battalion Aid Station.

In the past, the Bushmaster scenario was set in Bosnia. Today, the Bushmaster scenario is based in the Middle East; and, in the future, if another area of the World becomes significant, the USU instructors will change the cultural concerns and the diseases to match the new area of interest.

Emergency Medicine Clerkship. The USU SOM requires all students to complete a Clinical Clerkship in Emergency Medicine prior to their graduation as physicians. In preparation for their clinical work in an Emergency Department, all of the senior students participate in an intensive overview of Emergency Medicine incorporated into the MCM Course. During this didactic phase, students are taught how emergency medicine physicians problem solve. Lecturers demonstrate the steps they use when evaluating patients in the Emergency Department. In small group discussions, led by experienced emergency medicine physicians, students have the opportunity to practice problem-solving techniques. Lectures, small group discussions, and assigned readings give the students the skills they need to work in an Emergency Department. Students leave for their clinical rotations with a solid understanding of Emergency Medicine.

Students may choose from a variety of sites (military and civilian) to perform their Emergency Department clinical rotations. All military hospitals having training programs in Emergency Medicine are open to USU SOM students. These include: the Darnall Army Community Hospital at Fort Hood, Texas; the Madigan Army Medical Center in Tacoma, Washington; the Naval Hospital in San Diego, California; the Naval Hospital in Portsmouth, Virginia; the Medical Center at Wright Patterson Air Force Base, Ohio; and, the San Antonio Uniformed Services Health Education Consortium, which encompasses the Wilford Hall Medical Center in Lackland, Texas, and the Brooke Army Medical Center located in San Antonio, Texas. In addition, USU SOM students can choose from among several high-volume, trauma intensive civilian sites including: Charity Hospital in New Orleans, Louisiana; the Ben Taub General Hospital in Houston, Texas; and, the University of Maryland Medical Center in Baltimore, Maryland. In the Emergency Department, students function under the supervision of experienced Emergency Medicine physicians and are expected to be active members of the Emergency Department team as they care for patients of all ages and with a variety of medical and surgical problems. Students are encouraged to take part in the didactic activities of the Emergency Department in addition to patient care. Each year, about ten USU SOM students choose Emergency Medicine as their career choice; many have gone on to become leaders in Emergency Medicine.

Operational Electives. The Department of Military and Emergency Medicine, through its Education Division or one of its three centers, sponsors several electives in operational medicine. These may include clinical rotations in military emergency departments or aerospace medicine clinics, enrollment in military courses, or attendance at the Joint Readiness Training Center. Qualification as a flight surgeon may be obtained through either the United States Air Force School of Aerospace Medicine or the United States Army School of Aviation Medicine; during the past years, the Army School has altered the timing and structure of their course specifically to enable USU SOM students better access to

this form of occupational medicine. Whereas only one student had attended in the previous two years, five students and one faculty member attended during 2001; four of those six were the top four graduates of the demanding six-week Army course. Nine students attended during 2002. Two students worked in a trauma center in Armenia before their graduation in 2002. And, three students were sponsored by the USU Center for Disaster and Humanitarian Assistance Medicine (CDHAM) to accompany an Air Force unit on a humanitarian mission to El Salvador during 2002; in 2003, CDHAM provided funding for one fourth-year USU SOM student to participate as part of a nutrition-based study in Honduras.

USU SOM Curriculum Stresses a Military Focus. In addition to the military unique curriculum described above, *the USU SOM academic departments and faculty have structured all of their courses to include: topics specific to military medicine and not covered in the traditional medical school curriculum; and, teaching examples and cases drawn from military medicine.* This content focus is reinforced by the fact that many of the faculty (one third of the billeted basic science faculty and two-thirds of the clinical faculty) are uniformed officers representing the Army, Navy, Air Force, and the Public Health Service; these uniformed instructors provide experience and contextual correlations during their teaching of traditional topics. *The unique practice of military medicine is woven throughout the four years of medical school.*

Curriculum Renewal.

Background. The SOM curriculum utilizes a variety of educational experiences and learning formats, including lecture, laboratory, clinical correlation, small group discussion, computer and web-based experiences, patient simulator, standardized patients, and experiential exercises. The SOM vision for the undergraduate curriculum is that the science of today is taught in an environment that will foster increased long-term, self-directed learning tomorrow. Toward this end, the SOM Executive Curriculum Committee (ECC) completed an exhaustive study of the undergraduate curriculum, and revisions are ongoing to minimize the traditional curricular *stovepipes* through course integration and the increased use of clinical material.

In both the first and second years of medical school, there is a heavy emphasis on small group learning. In the first year, this takes the form of laboratories in Structure and Function and discussion groups in Human Context. Additionally, the Introduction to Clinical Medicine Course starts in the first year and begins to develop history-taking and physical diagnostic skills. In the second year, laboratories continue in Pathology and Microbiology, while there is increased use of a small group *problem-based learning* educational format. In both Pathology and Clinical Concepts, groups of 8 to 12 students team with a faculty member to review clinical scenarios. The format of these encounters is designed to flow seamlessly into the second-year portion of the Introduction to Clinical Medicine Course and the clerkships during the third year.

Integration of Clinical Medicine and the Basic Science Experience. There are numerous examples of clinical medicine being integrated into *the basic science experience*. Close collaboration between the Departments of Radiology and Radiological Sciences (RAD) and Anatomy, Physiology, and Genetics (APG) led to the development of computer-based learning resources correlating basic anatomy with the radiological representation of normal and pathologic states. The integrated structure and function curriculum (Physiology and Anatomy) incorporates clinical faculty into its teaching. Several areas in particular - Cardiovascular, Renal, and Pulmonary - have demonstrated extensive clinical integration for many years. The Department of Pathology utilizes many clinical facilitators for its small group discussions. In addition, Pathology has coordinated the format of its case presentations with course directors from Clinical Concepts and Introduction to Clinical Medicine to provide a consistent experience for students. Pathology and Clinical Concepts have also coordinated their curriculum to provide the case scenarios in Clinical Concepts in sequence with topics being discussed in Pathology. The Department of Pharmacology also encourages clinical facilitators to participate in their small group exercises. There are currently several initiatives being considered to move basic science to the clinical years. One example is the proposal before the ECC to develop a computer or web-based curriculum of key basic science topics for exploration in the fourth year of medical school. These examples illustrate basic science and clinical integration either in place or under active consideration.

The Renewal Process. As the Chief Academic Officer of the SOM, the Dean is responsible for institutionalized curriculum management. Policy issues are reviewed and considered by the ECC, which reports to the Dean. Institutionalized curriculum renewal in the SOM is a high priority. The formalized process began with Phase I (1993-1995) of curriculum renewal. During Phase I, a steering committee

with four subcommittees was developed to cover the following areas: 1) the history of medical education in the United States; 2) current experiments in curriculum reform; 3) curriculum at the USU SOM; and, 4) professional requirements and outcomes. Subcommittee reports and recommendations were generated and reviewed by the faculty. The Dean's Office and academic departments then offered recommendations on how to best implement the committee's recommendations.

During Phase II (1996-1997), a steering committee and five subcommittees were established; they reviewed or completed the following: 1) objectives and goals; 2) an organizational template for curriculum management; 3) basic science and intra-departmental and clinical integration; 4) outcomes and evaluations of the clinical clerkships, both required and elective; 5) the establishment of topic groups; 6) subcommittee and topic group reports and recommendations; 7) a consensus on the recommendations and implementation planning; and, 8) the implementation process.

In February of 1998, the Dean charged the ECC with reviewing the December 1997 Curriculum Review Report produced during Phase II of the curriculum renewal process. The ECC was also charged with providing oversight for the planning process and the development of an implementation plan for curriculum renewal. This implementation plan is envisioned as an evolutionary process, with changes in the curriculum occurring in an incremental fashion. The ECC completed a draft of the SOM educational objectives, which was reviewed by the Dean and distributed to faculty, students, and staff for comment, and finalized in November of 1998. As changes to the curriculum occur, the SOM Dean has also directed that his office establish and monitor processes for student, faculty, and TriService evaluation of the curriculum changes.

Responsibilities of the Executive Committee on Curriculum. On August 2, 2001, the SOM Dean issued a Policy Memorandum updating the responsibilities of the USU SOM Executive Committee on Curriculum (ECC). The members of the ECC are drawn from the faculty, student body, and administration. Members are charged with representing the interests of the SOM as a whole; not as representatives of specific constituencies. The twelve members of the ECC have been designated with responsibility in seven areas to: 1) articulate, with the concurrence of the Office of the Dean, well-defined learning objectives that each student must meet to receive the M.D. Degree; 2) conduct a biennial review of each required course/clerkship in the SOM undergraduate curriculum, including content, format, teaching methods, course materials and methods for verifying that graduating students have met all of the learning objectives; 3) establish a prospective course/clerkship review schedule that gives course/clerkship directors sufficient time for proper consultation and preparation before the biennial review; 4) complete the course/clerkship review and assessment within 60 days of submission and presentation by the course/clerkship director, including submission of findings and recommendations to the Office of the Dean; 5) request, if necessary, through the Office of the Dean, further information, seek consultation with faculty or external consultants, and, when appropriate, sponsor symposia on curriculum to assist course/clerkship directors or topic group leaders in curricular planning or improvement; 6) periodically review institutional policy concerning the curriculum and educational practices to ensure consistency in the implementation and management of the undergraduate medical education program; and, 7) address other curricular issues and educational initiatives as charged by the Dean, SOM.

Issues addressed by the ECC in recent years include: coordination and/or changes to examination schedules; changes to the academic schedule grid; review of grading policies; review of mandatory attendance policy; discussion and response to student-generated After-Action-Reports; review of fourth-year requirements; consideration of a diversity curriculum proposal; review of changes to the first and second-year Introduction to Clinical Medicine Courses; and, review of the students' military responsibilities and their impact on the overall academic experience.

Responsibilities of Department Chairs and Faculty. The Department Chairs are responsible for establishing objectives, designing content and presenting each course/clerkship assigned to his/her department and for assuring that the performance of students is evaluated in an appropriate and timely manner and in accordance with institutional policy. The Chairs are also responsible for supporting Course or Clerkship Directors with requisite faculty and specifically for assigning teaching responsibilities to faculty members and for allocating departmental resources as required to support the courses, clerkships, selectives, and electives assigned to their departments. Course or Clerkship Directors for departmental-sponsored courses will be appointed by the responsible Chair; Course or Clerkship Directors for interdepartmental courses will be appointed by the Dean, SOM. Faculty members are the content experts in the individual basic science and clinical science disciplines and collectively are responsible for the SOM curriculum. The processes of curricular design, implementation and evaluation must involve broad participation by the SOM faculty both at the departmental level and at the institutional level. Every assigned faculty member is responsible, generally, in coordination with the Course or Clerkship Directors, for fulfilling his/her assigned teaching responsibilities in the areas of undergraduate curriculum.

Center for the Enhancement of Healthcare Training and Outcomes. The Liaison Committee on Medical Education (LCME) has stated that medical faculty and students need to address gender and cultural biases in the delivery of health care and, in general, prepare providers to care for diverse patient populations. Under the direction of **Evelyn L. Lewis, M.D., MA (CDR, MC, USN, Retired), SOM Department of Family Medicine**, and **Richard Tanenbaum, Ph.D., SOM Department of Medical and Clinical Psychology**, USU has developed a biopsychosocial training program for medical students and residents, nursing students, clinical/medical psychology graduate students and other prospective health care professionals, faculty, and staff. The USU SOM Center for the Enhancement of Healthcare Training and Outcomes (CEHTO) enables the University to comply with the LCME requirements and improves USU's curricula by providing training to optimize patient adherence and enhance health care outcomes. Specifically, CEHTO has been established to: 1) infuse concepts and processes into existing curricula in order to advance a biopsychosocial philosophy and improve cultural proficiency; 2) provide a forum in which students have the opportunity to practice the skills and strategies addressed in the classroom; 3) facilitate the development of culturally respectful relationships - inside and outside of the USU community; and, 4) evaluate the impact of this initiative and continuously improve and refine the training provided.

Fundamentally, CEHTO is designed to teach current and future health care professionals how to increase their effectiveness. Its ultimate aim is to train providers to use a wide knowledge base, interpersonal and communication skills, and cultural awareness to effect the most beneficial treatment for patients from diverse backgrounds. As a component of the Family Practice Clerkship Curriculum, for example, medical students receive didactic and experiential training. Via facilitated conversations, small

and large group exercises, and multi-media presentations, students learn about how cultural factors affect them, their patients, and their interactions with others. Experiences such as these foster an appreciation of cultural diversity, the patients' overall health needs, and, most importantly, how our own beliefs and biases can impact medical decision-making and patient care. Moreover, this training gives SOM students the opportunity to consider, rehearse, and evaluate specific strategies to deal most effectively with diverse multi-cultural populations. Hands-on, experiential training modules also utilize standardized patients (patient actors) at the USU Military Medical Simulation Center (SIMCEN). Using realistic behavioral simulations, this state-of-the-art medical simulation center provides a unique forum in which participants can practice, develop, and refine new skills, and translate increased cultural awareness into culturally proficient behaviors. Detailed feedback is provided and individualized behavioral prescriptions are generated to assist participants in setting objective goals for improvement.

During 2003, the University and the SOM Departments of Family Medicine and Medical and Clinical Psychology applied for, and successfully received, a substantial grant from the National Institutes of Health (NIH) to sponsor the USU Center for Health Disparities, referred to as *Project EXPORT*. **Evelyn L. Lewis, M.D., MA (CDR, MC, USN, Retired), SOM Department of Family Medicine**, is the Principal Investigator on the NIH grant; and, **Richard Tanenbaum, Ph.D., SOM Department of Medical and Clinical Psychology**, serves as the Co-Principal Investigator and Project Director. **David S. Krantz, Ph.D., Professor and Chair, SOM Department of Medical and Clinical Psychology**, is the Center Director. As part of Project EXPORT, CEHTO will assist in meeting the following objective: to develop workshops and other educational forums that focus on disseminating critical knowledge about health disparities and teaching practical skills in order to maximize culturally proficient health care service delivery.

Departmental Review. A program was adopted by the School of Medicine in 1998, which mandated each SOM department to conduct a *self-study* every five years or at the time of the appointment of a new chairperson. The self-study would be followed with a review of the self-study by a group of *peers* from outside of the University. From 1999 through 2003, self-studies and external reviews have been completed by the following Departments: Anesthesiology; Dermatology; Family Medicine; Military and Emergency Medicine; Obstetrics and Gynecology; Pediatrics; Pharmacology; Neurology; and, Radiology and Radiological Sciences. Other departmental reviews pending completion include: Anatomy, Physiology and Genetics; Medical History; Medicine; Pathology; and, Psychiatry. The results of these studies will be used to chart future courses for these departments in education, research, and community service.

STUDENT AFFAIRS

Class of 2007. During August of 2003, the School of Medicine (SOM) matriculated its twenty-eighth class (the Class of 2007). The 1,686 applicants, representing all 50 states, competed for 167 positions. There were approximately 10 applicants for each position, which allowed a diverse and highly qualified selection of candidates with a motivation toward public service. The Class of 2007 includes 63 Army, 51 Navy, and 51 Air Force medical students. In addition, 2 United States Public Health Service medical students were added to the class. The demographics of the class are depicted as follows:

- Sixty-seven students (40 percent) were associated in some way with the military before USU matriculation. Of those,
 - Fifteen students served previously as officers; ten had previously served as enlisted personnel; sixteen were service academy graduates; twenty-three were direct graduates of ROTC programs; and, three were reservists;
- Sixty-seven students (40 percent) are women;
- Forty-four class members (26 percent) are minority students (including 13 students from groups classified as underrepresented by the Association of American Medical Colleges); and,
- The average age of the entrants at the time of application was 24 years.

All members of the Class of 2007 hold Baccalaureate Degrees; eleven students hold Master of Science Degrees; one holds a Doctorate in Veterinary Medicine; and, one holds a Doctor of Optometry. Biology was the most represented undergraduate major of the matriculants (35 percent); thirteen percent of the class had majors in Chemistry; and, seven percent had majors in Biochemistry. Some of the other disciplines in which members of the Class of 2007 hold degrees are Political Science, Neurobiology, Microbiology, Psychology, Nutrition, Engineering, and Anthropology.

The Office of Student Affairs. Throughout Fiscal Year 2003, the Office of Student Affairs (OSA) was engaged in personal and/or professional academic counseling and career guidance for the 668 students in the SOM. Beginning in September of each year, OSA conducts well over 300 formal interviews. In 2003, this process formally began with the post-matriculation interviews of all 167 freshmen from the first-year class.

Structured Interviews for the First Year Class. The purpose of the MS-I (medical student-first year) interview is to engage each new medical student in a relationship with the OSA and the office staff who will manage his/her professional development and career guidance. The interview is open with an emphasis on the future partnership (or the individual management and consulting network) that will exist between each student and the Associate Dean and two Assistant Deans in OSA. The interview covers five areas: 1) Transition - the move to Washington, e.g., housing, getting settled, family issues; 2) Sense of Membership in the Class, e.g., within and between Services, professional, social; 3) Sense of Professional Vision, e.g., vision for what will come after medical school; 4) Adjustment to Student Life, e.g., how are they managing the 24-hour clock; and, 5) Inquiry about Image, e.g., aside from the roles of student, spouse, parent, athlete, what really defines them? Students are free to raise any questions, concerns, or thoughts. The interviews require considerable time, but have definitely proven to be worth the effort for both the students and OSA. These interviews set the stage for an on-going dialogue with each student over the four years of medical school and for establishing a sense of community throughout the student body.

Sponsor Program. In January of 2003, OSA allocated sponsor assignments for the newly accepted students in the Class of 2007. Upon acceptance to USU, members of the incoming class are individually matched with members of the current freshman class. First-year students serve as the incoming students' sponsors; the student-sponsor answers questions about housing, moving to Washington, D.C., family issues, military summer training, and many other topics. The student-sponsor relationship has proven to be a valuable tool in assisting the incoming students through matriculation.

Jumping from an aircraft at 1,280 feet, 2nd-Lieutenants Reed Kuehn, Chad Cryer, and Johannah Kone (Class of 2005 - on an operational assignment following their first year of medical school) **qualified as paratroopers while attending Jump School at Fort Benning, Georgia. The school was broken down into three weeks: *ground week*, which consisted of jumping out of a mock door, four people at a time, and practicing landing and falling by hooking a cable from a 34-foot tower; *tower week*, which advanced them to a 250-foot tower, fortifying the practice of landing and falling, mass exiting from an aircraft, air mobility and emergency malfunctions of the parachute and how to handle them; and, *jump week*, where all of the training is pulled together and the students perform four jumps, including a night jump. "The most exciting part was at the door waiting to jump, where it was extremely loud, then jumping into complete silence," said Kuehn.**

"We went to represent USU, complete the course and to gain knowledge for our futures," said Cryer. "It was good to see the everyday life of the people whom we will be taking care of and the conditions that they go through." All three students gained an understanding of the importance of preventive medicine. Just doing the simple things like staying well-hydrated and applying sunscreen helped keep troops comfortable with all of their gear on. "There was lots of monotony in the training, falling again and again, as repetition helped seed in people's minds what to be aware of to prevent many injuries," said Cryer.

In the case of most of the class, this was the group's first experience with the operational side of the military. The large volume of enlisted troops impressed Kone, in particular. "I think the experience gave me a better awareness of what soldiers go through," Kone said. "Even though half of the time we were sitting around waiting to jump, while we were waiting, we had to sit with all of the equipment on in the heat." Kone felt this experience gave her a better understanding of the unique burdens that the enlisted soldiers have to face... "When you are treating someone and they see the patch (patch earned upon completion of the operational training)... you have a connection with the patient."

- USU Medicine, USU Students Gain Deployment Experience, Fall 2002, page 27.

USMLE Board Examinations. During Fiscal Year 2003, OSA prepared the second-year students for the United States Medical Licensing Examination (USMLE) Step 1 Board Examination, which the students took between May and June of 2003, prior to beginning their first of the third-year clinical rotations. During 2003, OSA provided class-wide presentations covering the fundamentals of the examination process, test preparation strategies, and test-taking skills. Students also organized their own informal programs, which have included mini-lectures on broad relevant topics, meetings with select faculty, and group study sessions. The USU first-time pass average for the Step 1 Board Examination during 2003 was 90.1 percent. Most of the USU fourth-year students (SOM Class of 2004) completed the Step 2 Board Examination between July and September of 2003. The overall performance for the Class of 2004 was strong; the average score for the class was 211; and, the pass rate was 95 percent.

Third-Year Clerkship Scheduling. Also during February, OSA met with the second-year students to schedule their third-year clerkships. To increase student input into the orchestration of their third-year clerkship schedule, OSA has moved from a system where students were simply given a pre-selected schedule of randomly assigned clerkships. The student now has the ability to place rotations of special interest in the first half of his/her junior year and the opportunity to experience potential career choices at an early point. In addition, the current system allows students to coordinate some of the required travel in their academic third year with personal events, which may already be planned or anticipated. The staff, of OSA conducted Round 1 clerkship selections for the Class of 2005 using randomly assigned numbers. During the second week of February, students met as a group and picked rotations for the remaining rounds. The students shared equally in opportunities for assignments of choice and expressed their appreciation for the process.

Graduate Medical Education Planning Interviews. OSA conducts interviews with the third-year medical students during the fall term. During the first few months of 2003, OSA met individually with members of the junior class to conduct fourth-year planning. The hour-long meetings covered Graduate Medical Education (GME) planning, specialty choice, interviews, and specific sequencing of senior rotations to maximize the selection of their residency of choice; again, available selections for senior-year rotations exceeded the general expectations of the students. OSA arranged program schedules, which enhanced student growth, professional experience, and individual preferences. A major

product of this process is the Dean's Letter, which presents a comprehensive picture of each student's strengths. Selection for GME positions is competitive; OSA and students worked together to create the best nomination packages possible.

Graduate Medical Education Selection Board. The Joint Service Selection Board convened during the week of December 1-5, 2003; and, 167 USUHS seniors (the Class of 2004) were selected for PGY-1 positions: Army - 67; Navy - 47; Air Force - 53. The overall selection rate for FIRST CHOICE programs was 77 percent. USU had 128 out of 167 students match for first choice both in specialty and training site. Seventeen additional students of the Class of 2004 received their first choice in specialty, resulting in 87 percent (145 out of 167) receiving their first choice in specialty. Nearly half of the class (40 percent) was selected for training in a primary care specialty. Sixty-seven seniors will begin their residency training during this Summer in the following areas: Family Medicine - 18; Internal Medicine - 19; Pediatrics - 23; and, Obstetrics and Gynecology - 7. The directors of the MHS military programs once again demonstrated confidence in the USU SOM graduates.

The USU Military Medical Student Association. The Military Medical Student Association (MMSA), a quad-service, student-run organization, originated at USU more than thirteen years ago. MMSA's goals include developing lines of communication among military medical students nationwide, providing information, and promoting morale and unity among future military medical officers.

Unlike USU medical Students, the Health Professions Scholarship Program (HPSP) students attend universities in the civilian sector; they receive tuition and books and are paid a monthly stipend while working toward their medical degrees. The HPSP students receive limited military training and influence while attending the civilian schools. To share their unique military training, MMSA has sponsored conferences where residency directors and medical specialty representatives from around the country, and USU staff and faculty members present lectures and hold discussions on various topics, including service specific issues, military medical history, operational considerations of military medicine, and basic military concerns that affect both USU and HPSP medical students. The USU MMSA has also established the *MMSA Journal*, which provides valuable military information of interest to medical students; the MMSA goal is to make copies of the journal available to all HPSP students.

ACHIEVEMENTS OF THE SOM ALUMNI

As the Executive Agent of the Uniformed Services University of the Health Sciences (USUHS), I would like to comment on the extraordinary achievements of the University... USUHS SOM graduates, with retention averaging twenty years of active duty service, now represent over 22 percent of the total physician officers on active duty in the Armed Forces. And, as provided to the Congress during 2002, the median length of non-obligated service for physician specialists in the Military Health System, not including USUHS graduates, is 2.9 years; however, the median length of non-obligated service for USUHS graduates is 9 years. USUHS graduates are exceeding the original expectations of Congress when the University was established, thus ensuring physician continuity and leadership for the Military Health System... The USUHS-unique training centered in preventive medicine and combat-related health care is essential to providing superior force health protection and improving the quality of life for our service members, retirees, and families. USUHS also provides a significant national service through its continuing medical education courses for military physicians in combat casualty care, tropical medicine, combat stress, disaster medicine, and the medical response to weapons of mass destruction (WMD).

- Vice Admiral Michael L. Cowan, Surgeon General of the Navy, Testimony before the Senate Appropriations Committee, Subcommittee on Defense Health, April 30, 2003.

Recent tragic events and the current Global War on Terrorism clearly show the benefits of preparedness and training. It is gratifying to know USUHS is leading the way in preparing military healthcare professionals to meet current and future challenges.

- Richard B. Myers, Chairman of the Joint Chiefs of Staff, Letter to USU dated March 29, 2002.

I deployed to the Gulf very early, August 11, 1990, as a senior medical officer with the Air Force Special Operations Command. Deployed in this capacity, my responsibilities ranged from flying training and combat support missions to representing my command at theater-level planning conferences... The heat in August was incredible, with temperatures up to 125 degrees. Yet our maintenance personnel had to work around the clock to get our aircraft combat ready. Just sleeping six hours in the heat caused dehydration to the point of dizziness. Our medical team was on the flight line and around our tent-city bringing sunscreen and ice water to the personnel because they could not drink 100 degree water out of a canteen.

My training at USUHS had prepared me for working in austere conditions without fixed facilities. The tap water in our camp became contaminated by the sewer system, and water tanks had to be provided with chlorine levels monitored daily. Because of the *military*

medical history classes I had at USUHS, I knew that disease and non-battle injuries could make an army ineffective before the battle began. *Preventive medicine* is an entire department and course of study at USUHS. I had the training and references...to avoid repeating the mistakes of previous wars... Because of the emphasis on *tropical medicine* at USUHS, I was able to advise the Commander and troops about potential infections and how to protect themselves...Because we *studied the air evacuation system* and did practice exercises using it at USUHS, I was able to coordinate a unique mini-mobile aeromedical staging facility at our intermediate operating base. This provided the transition from our helicopter rescue aircraft to the C-130 medical evacuation system. As our troop build-up progressed, hospitals from each Service increased. Because at USUHS I had been taught *the organization of medical systems in the other Services*, I was able to arrange referrals for our patients much more easily...We had no logisticians, but were able to obtain supplies through the Army depot system, which I also learned about at USUHS.

Another area of major concern for our personnel was chemical warfare. Because of the thorough preparation and field training I had as a student at USUHS, I was *able to develop a training program in unconventional warfare, such as chemical and biological threats*, which increased confidence and decreased anxiety in our troops... When we deployed to our forward locations, there were no *designated disaster preparedness personnel*. The USUHS experience came in handy again, as I assumed those responsibilities. A plan for *decontaminating aircraft, vehicles, and personnel* was created. Materials were purchased and positioned to maximize readiness.

To summarize the impact of the 4-year immersion in military medicine at USUHS on my preparation for war, I appreciated the operational mission of my unit and how I, as a medical officer, fit into the process of planning and executing that mission. This went well beyond treating patients. It involved analyzing the tactical situation, advising the Commander, and integrating with other Services. *USUHS graduates were well prepared.*

- Lieutenant Colonel Charles Beadling, USAF, MC, USU Class of 1984, (currently at the Rank of O-6), Testimony before the Senate Appropriations Subcommittee on Defense, April 14, 1994, page 95.

General Overview. The graduating Class of 2003 was the twenty-fourth class to receive Medical Degrees from USU. *As of April 2004, of the total 3,421 medical school graduates, 2,735 remain on active duty in the Uniformed Services (Army - 1,056; Navy - 789; Air Force - 796; USPHS - 94); and, the 2,641 USU SOM alumni on active duty in the Military Health System represent over 22.2 percent of the total physician force in the Department of Defense - 11,901 physicians.* USU graduates have a seven-year obligation, which only begins after they complete their three-plus years of residency training. This obligation is exclusive of any other service obligations they may have already incurred, such as graduation from one of the Service Academies. After twenty-four graduations, data is now available to document that the USU SOM graduates are meeting, or surpassing, the goals established by the founders of USU. Since the first graduation in 1980 to April of 2004, the overall retention rate for USU graduates

is 80 percent; of the ten USU SOM classes, which graduated between 1990 and 1999, the retention rate is 94.2 percent (Congress had originally envisioned retention rates close to 70 percent). The average USU physician graduate serves over 18.5 years.

An example of the critical role of USU graduates in the MHS was reported to the Congress in both 2002 and 2003, when the Surgeon General of the Navy testified that the Center for Navy Analysis (CNA) had provided significant data on the retention of physicians. The Navy Surgeon General informed the Congressional Committees that his most undermanned specialties were general surgery and all surgical subspecialties, orthopedic surgery, diagnostic radiology, anesthesiology, and urology. Many of these specialties are critical wartime specialties and shortfalls could have a negative impact on medical readiness. *Overall, the median length of non-obligated service for physician specialists averages only 4.4 years. That average drops to 2.9 years when USU graduates are excluded; the median length of non-obligated service as a specialist for USU graduates is 9 years.*

Significantly, in April of 2003, CNA released *Phase II: The Impact of Constraints and Policies on the Optimal-Mix-of-Accession Model* of its major study, Life-Cycle Costs of Selected Uniformed Health Professions. The second of six major findings states: *policy-makers need to consider the costs and benefits for each accession source. For example, even though USUHS accessions are the most costly (the General Accounting Office has reported that when all Federal costs are included, the cost of a USU graduate is comparable to the cost of an HPSP graduate), their better retention makes USUHS the most cost-effective accession source for filling 0-6 grade requirements* (page three of the report).

In just a short timeframe, USU graduates have become well respected in their medical specialties and provide continuity and leadership for the MHS serving in areas of military medicine ranging from special operations and hospitals, to the White House and the newly established Department of Homeland Security, to deployments to Afghanistan and Iraq, and to assignments aboard ships at sea or with the Blue Angels, the NASA Johnson Space Center, the Secretary of Defense, and the Congress of the United States. Following the terrorist attacks on September 11, 2001, USU graduates were strongly represented among the medical relief workers at the World Trade Center and at the Pentagon; they led the efforts to identify remains at the Dover Port Mortuary; and, USU graduates assisted in directing the Nation's medical response in the wake of the anthrax attacks. On May 12, 2003, USU was provided with an *initial* (and ever-increasing) listing of physicians deployed for Operation Iraqi Freedom from the Army; of the 346 Army physicians, 67 (almost 20 percent) were USU SOM alumni. Other alumni are engaged in patient care or research in military hospitals and clinics around the world, administering to active duty officers and enlisted personnel, retirees, and family members. Currently, 14 of the 58 Specialty Consultants to the Army Surgeon General are USU graduates; 8 of the 45 Specialty Consultants to the Navy Surgeon General are USU graduates; and, 18 of the 59 Specialty Consultants to the Air Force Surgeon General are USU graduates. USU graduates are, and continue to provide, a strong cadre of leaders who ensure the continuity of military medicine.

Second USU Alumnus Promoted to 0-7. USU's second flag officer, **Brigadier General Charles "Bill" Fox, MC, USA, USU Class of 1981**, was initially triple-hatted as the Corps Surgeon for the XVII Airborne Corps, Commander of the 44th Medical Command, and Director of Health Services

at Fort Bragg, North Carolina. He is currently assigned as the Commanding General at the Brooke Army Medical Center and Great Plains Regional Medical Command at Fort Sam Houston, Texas. During 2003, he received the Norman M. Rich Department of Surgery 2003 Baron Dominique Jean Larrey Award for Excellence in Military Surgery from the USU Surgical Associates. (**Rear Admiral E. Connie Mariano, MC, USN (Retired), USU SOM Class of 1981**, was the first USU alumnus to be selected as a flag officer.)

Third USU Alumnus Selected for Promotion to 0-7. USU's third alumnus selected for flag officer was **Brigadier General Bill Germann, USAF, MC, USU Class of 1982**; he was selected during 2003 to command the 89th Medical Group, Malcolm Grow USAF Medical Center, at Andrews Air Force Base, Maryland.

Fourth USU Alumnus Selected for Promotion to 0-7. USU's fourth alumnus selected for flag officer was **Brigadier General (select) Thomas Travis, USAF, MC, USU SOM Class of 1986**. He is currently serving as the Commander of the 311th Human Systems Wing, Brooks City-Base (formerly Brooks Air Force Base), Texas.

USU Alumni Earn Promotions to 0-6.

USU Army Graduates Selected for Promotion to Colonel - 2003.

Thirty-three percent of the medical corps officers selected for promotion to Colonel (0-6) were USU SOM graduates. During 2003, of the 91 medical corps officers designated for 0-6, 30 were USU SOM alumni.

USU Navy Captain Promotion Selectees - 2003.

The Navy released the promotion list for Captain (O-6) Medical Corps during the first quarter of 2003. There were 256 physicians considered for promotion to O-6 in or above zone. Of those, 35 were USU alumni; 221 were non-USU alumni. Overall, 72 physicians were selected for promotion. Of the 35 USU alumni considered for promotion, 12 were selected, resulting in a 34.3 percent selection rate. Of the 221 non-USU alumni considered for promotion, 60 were selected, resulting with a 27.1 percent selection rate. Again, USU graduates were selected at a rate higher than their peers.

USU Air Force Graduates Selected for Promotion to Colonel - 2003.

During late 2003, 37 Lieutenant Colonels were selected for promotion to Colonel (0-6). Of the 37 selected for promotion, 12 were USU alumni from the USU SOM Classes of 1987, 1988 and 1989; USU SOM alumni represented 32.4 percent of those selected for promotion in the United States Air Force.

U.S. Public Health Service Graduates Selected for Promotion to Captain - 2003.

The U.S. Public Health Service promoted several USU graduates to Captain during Fiscal Years 2002/2003. **CAPT Karen Parko, M.D., USPHS, USU SOM Class of 1991**, was one of only two physician officers in the USPHS Commissioned Corps selected for an Exceptional Capability Promotion. She assumed the rank of Captain (0-6) on July 1, 2002. CAPT Parko, assigned as the Director, Neurological Services, at the Northern Navajo Medical Center in Shiprock, New Mexico, was also selected by U.S. Medicine, a medical news organization, as one of the 10 top finalists for the Frank Brown Berry Prize in Federal Healthcare during 2003. She recently transferred to the Neurology and Rehab Service at the San Francisco Veteran's Administration Medical Center in California, where she is also serving as the Chief Clinical Consultant in Neurology for the Navajo Area Indian Health Service. **CAPT Anderson Funke, M.D., USPHS, USU SOM Class of 1988**, was also promoted to 0-6 at the beginning of Fiscal Year 2003; CAPT Funke served as the Medical Director of the Carolina Health Centers in Greenwood, South Carolina, during 2003.

USU SOM Graduates Hold Leadership Roles and Earn Special Recognition throughout the Uniformed Services - Selected Examples from the USU SOM Alumni.

Class of 1980.

Colonel Cass Conaway, MC, USA, following a distinguished career of 23 years on active duty in the Army, retired during 2003 (*see further information on Colonel Conaway's career in the Selected Profiles Section, which directly follows the achievements of the Class of 2001*).

CAPT Sandra Yerkes, MC, USN, served as the Deputy Chief of the Navy Medical Corps, assigned to the Navy Bureau of Medicine and Surgery (BUMED) in Washington, D.C., during 2003. CAPT Yerkes is currently the last member of the SOM Charter Class who remains on active duty.

Class of 1981.

Colonel Don Bradshaw, MC, USA, served as the Commander of the Martin Army Community Hospital at Fort Benning Georgia, during 2003.

Colonel Warner "Rocky" Farr, MC, USA, served as the Command Surgeon for the United States Army Special Operations Command at Fort Bragg, North Carolina, during 2003.

Colonel George F. Fuller, MC, USA, retired during 2003 from active duty service. Over the course of his career, he developed a diverse background both as a military officer and as an innovative physician, serving in both operational and academic leadership positions. As a commander, teacher, clinician, and researcher, Colonel Fuller demonstrated unprecedented dedication to his Nation and made countless contributions to military medicine, the Office of the President of the United States, family medicine, and geriatric medicine.

Colonel Kevin Keenan, MC, USA, served as the Dean of the Joint Special Operations Medical Training Center at Fort Bragg, North Carolina, during 2003.

Colonel Ann Norwood, MC, USA, Associate Professor and Associate Chair of the USU SOM Department of Psychiatry, has been actively working with the American Psychiatric Association to assist the areas impacted by the global war on terrorism. During October of 2002, Colonel Norwood was identified for the position of Special Assistant to the Assistant Secretary of Health at the Department of Health and Human Services (HHS); she transferred from USUHS to HHS during May of 2003.

CAPT David Wade, MC, USN, served as the Force Medical Officer to the Commander-in-Chief, United States Navy, Europe, during 2003.

Class of 1982.

Colonel David Burris, MC, USA, FACS, DMCC, has served as the Interim Chair of the USU School of Medicine Department of Surgery since October of 2002. Colonel Burris completed his general surgery residency at the Walter Reed Army Medical Center, has his Critical Care Certification, and is the Military Region XIII Chief for the Advanced Trauma Life Support (ATLS) Subcommittee of the Committee on Trauma of the American College of Surgeons. In that position, Colonel Burris is responsible for all ATLS programs within the Department of Defense. *During March of 2002, Colonel Burris reported that USU is one of three universities in the country permitted to teach the ATLS Course without using animals.* The American College of Surgeons allowed testing a non-animal model program for the teaching of ATLS; and, the USU President and Dean, SOM, approved the use of non-animal simulators in the Courses at USU. During 2003, Colonel Burris was deployed to Iraq and has since returned to USU.

Brigadier General William Germann, USAF, MC, was selected for promotion to Brigadier General, making him USU's third alumnus to achieve flag rank behind Brigadier General William Fox, MC, USA, USU SOM Class of 1981, and Rear Admiral E. Connie Mariano, MC, USN (Retired), USU SOM Class of 1981. Brigadier General Germann has served as the Commander of the 89th Medical Group (Malcolm Grow USAF Medical Center), Andrews Air Force Base, Maryland, since June of 2003.

Colonel William Gray, USAF, MC, served as the Commander of the 366th Medical Group, at the Mountain Home Air Force Base, Idaho, during 2003.

Colonel Deborah Kretzschmar, USAF, MC, served as the Vice Commander of the 59th Medical Wing at the Wilford Hall United States Air Force Medical Center, Lackland Air Force Base, Texas, during 2003.

Colonel William P. Madigan, MC, USA, is the Chief of Ophthalmology at the Walter Reed Army Medical Center, the Army's Consultant to the Surgeon General for Ophthalmology, USU SOM Ophthalmology Division, and the architect of the Army's Laser Refractive Surgery Program. Colonel Madigan explains that the capability exists to dramatically enhance the fighting forces' combat readiness through application of new technology. According to Colonel Madigan, through the Army's Military Refractive Readiness Program, a soldier's vision can be dramatically improved, enabling him to better perform his duties and improve his survivability on the battlefield. It is estimated that one-third to one-half of soldiers on active duty require some form of optical correction. Since the first laser eye surgery was performed in January of 2002, over 1,000 patients have been treated.

Colonel Alton Powell, USAF, MC, served as the Commander of the Air Force medical treatment facility at the 341st Medical Group, Malmstrom Air Force Base, Montana, during 2003. His previous assignment was at the hospital at Sheppard Air Force Base, Texas.

Colonel Lawrence Riddles, USAF, MC, served as the Commander of the Air Force medical treatment facility of the 5th Medical Group, Minot Air Force Base, North Dakota, during 2003. His previous assignment was as the surgical operations squadron commander at the 81st Medical Group, Keesler Air Force Base.

CAPT Raphael Roure, MC, USN, Class of 1982, along with three members of the USU SOM Class of 1992: **Commander Melanie Mitchell, MC, USN; Commander Sharon Miller, MC, USN;** and, **Commander William “Mike” Hall, MC, USN**, comprised four of the six physicians assigned to the Navy’s First Expeditionary Medical Unit, in Djibouti, as part of Operation Enduring Freedom, during 2003.

Class of 1983.

Colonel Cliff Cloonan, MC, USA, served as the Interim Chair of the Department of Military and Emergency Medicine at the USU SOM through June of 2003. Colonel Cloonan was assigned to USU in July of 2000, where he served as the Vice-Chair of the Department until August of 2001, when Craig Llewellyn, M.D., Colonel, USA (Retired), stepped down as the Department Chair of Military and Emergency Medicine. Colonel Cloonan had previously served as the Dean of the Joint Special Operations Medical Training Center at Fort Bragg, North Carolina, for three and one half years. From 1990 through 1993, Colonel Cloonan served in the USU SOM Department of Military and Emergency Medicine as an Assistant Professor; he was also the Course Director for both the *Combat Medical Skills Course* and the *Introduction to Combat Casualty Care Course*. In addition to serving as Interim Chair, Colonel Cloonan also served as the current Emergency Medicine Specialty Consultant to the Army Surgeon General; following a distinguished career, Colonel Cloonan retired from active duty, during 2004.

Colonel Kevin Keenan, MC, USA, served as the Dean, Joint Special Operations Medical Training Center, United States Army JFK Special Warfare Center and School, at Fort Bragg, North Carolina, during 2003.

Colonel Bob Lyons, MC, USA, served as the Deputy Commander for the United States Army 21st Combat Support Hospital during 2003; he was featured by the Public Broadcasting Service (PBS) program, *NOVA: Life and Death in a Combat Zone*, on March 2, 2004. Colonel Lyons participated in the creation of a state-of-the-art hospital in tents on the outskirts of Baghdad, Iraq.

CAPT John Perciballi, MC, USN, was recognized by the television media and the National press as a member of the Devil Docs in Iraq and for his skills outside of the operating room (*Devil Doc Trades Desert Surgeries for Tactics of U.S. Military Chess Team*) on September 8, 2003, due to his competition in the NATO Chess Championship in Copenhagen, Denmark; he is a general surgeon stationed out of the Naval Hospital in Pensacola, Florida.

CAPT Kevin Yeskey, M.D., USPHS, FACEP, Associate Professor, Department of Military and Emergency Medicine, Board Certified in Emergency Medicine, served during 2001 as the Director of the Bioterrorism Preparedness and Response Program for the Centers for Disease Control (CDC) in Atlanta, Georgia. CAPT Yeskey was named as the Acting Director of the program on August 20, 2001; and, he was selected as the Director on December 1, 2001. As the Director, he was charged with enhancing CDC’s capacities to assist States and other partners in responding to bioterrorism. In addition

to infectious disease concerns, other CDC efforts under this program included consideration for chemical terrorism, a National Pharmaceutical Stockpile, and National Lab Enhancement. During 2002, CAPT Yeskey served as the Director, Office of Emergency Response, in the newly established Department of Homeland Security, followed by a brief assignment with the Federal Emergency Management Agency (FEMA), until his retirement, in 2004.

Class of 1984.

Colonel Charles Beadling, USAF, MC, served as the Commander of the 375th Medical Group, Scott Air Force Base, Illinois, during 2003. Colonel Beadling's last assignment was as the Commander of the 95th Medical Group at Edwards Air Force Base, California.

CAPT Michael Holtel, MC, USN, served as the Otolaryngology Department Chair and Residency Program Director at the Tripler Army Medical Center, during 2003.

CAPT Sandra Kweder, M.D., USPHS, Associate Professor, USU SOM Department of Medicine, served as the Deputy Director of the Food and Drug Administration's Office of New Drugs during 2003. CAPT Kweder's previous assignments included serving as Deputy Director of the Office of Drug Evaluation IV, Co-Chair of FDA's Pregnancy Labeling Taskforce, Acting Director of the Office of Review Management, and Acting Director of the Office of Drug Evaluation II.

CAPT Diane Mitchell, M.D., USPHS, served as the Deputy Director for a large division at the Center for Devices and Radiological Health, Regulatory Affairs for Reproductive Devices, at the Food and Drug Administration, during 2003.

Colonel Kent Murphy, USAF, MC, was recognized by U.S. Medicine, a medical news organization, for his pioneering work in information therapy. Colonel Murphy, founder of the Air Force Academy's Center of Excellence for Medical Multimedia in 1998, was awarded the Frank Brown Berry Prize in Federal Healthcare. His influence is far reaching in the military medical world, with the most significant impact branching from his work with the Academy Center. The concept behind the Air Force Academy Center is that information technology can empower patients by educating them on medical techniques. Colonel Murphy felt that medicine needed to utilize the technology from the entertainment industry. The Center uses high-level cinemagraphic technology to create multimedia programs. The programs cover an array of medical topics including pregnancy, diabetes, early detection of colon cancer, suicide prevention, and outpatient surgical procedures. The Center takes complex medical topics and simplifies them for patients; it uses animation to make the topics interesting and utilizes technology found in movies to inform patients from underserved populations.

Colonel Kimberly Slawinski, USAF, MC, has served as the Commander of the 8th Medical Group at Kunsan Air Base, Korea, since June of 2003. Colonel Slawinski previously served as the Director of the Surgeon General's Tactical Action Team at Bolling Air Force Base in Washington, D.C.

Colonel Terry Walters, MC, USA, served as the Brigade Commander of the 1st Medical Brigade at Fort Hood, Texas, during 2003. Colonel Walters is also a graduate of the Master of Public Health Program at USU; she was recently featured in the Killeen (Texas) Daily News, *Former Immigrant Lives American Dream*, on February 23, 2004.

Class of 1985.

Colonel Mark Bagg, MC, USA, served as the Chief of Orthopaedic Surgery at the Brooke Army Medical Center during 2003; he was featured in an interview for the McNeil-Lehrer Hour, *Healing the Wounds*, December 3, 2003, for his service in addressing the traumatic orthopaedic injuries of soldiers wounded in Iraq.

Commander Margaret Bash, M.D., USPHS, is currently conducting bacterial vaccine research and development in a joint program through the Food and Drug Administration and the National Institutes of Health.

CAPT Hans Brings, MC, USN, is a vascular surgeon who was attached to the Navy's Fleet Hospital Three (FH-3), the first expeditionary medical facility assigned to a war zone. CAPT Brings, who is stationed at the National Naval Medical Center in Bethesda, Maryland, was among a team of 300 health care providers and construction battalion personnel deployed to Iraq with the Pensacola, Florida-based fleet hospital. FH-3 is the latest effort to increase the life-saving capabilities of Navy medicine. With an eye on delivering care faster, the 9-acre, 116-bed facility is designed to provide treatment in the field to those who risk their lives on the battlefield. FH-3 went to Iraq with 166 trucking containers filled with more than \$12 million in medical equipment and supplies.

CAPT Robert Darling, MC, USN, is currently the Senior Medical Advisor to the Navy Medicine Office of Homeland Security. "Fighting terrorism is the single most important objective to ensure our national defense, and we need our very best talent dedicated to the cause. CAPT Rob Darling is our most highly qualified expert and will guide us well" (from remarks by Rear Admiral Donald C. Arthur, Deputy Surgeon General of the Navy and Chief of the Medical Corps). During 1996, when the White House was looking for a new White House Physician, a post generally filled by internists, surgeons, or family physicians, CAPT Darling was the first emergency physician to be selected for the assignment. While at the White House, CAPT Darling assisted the Secret Service to better understand the threat of a biological attack from a medical perspective.

Colonel Loren Erickson, MC, USA, served as the Commander of the United States Army Center for Health Promotion and Preventive Medicine-Europe, during 2003.

Colonel Bryan Funke, USAF, MC, served as the Commander of the 14th Medical Group at the Columbus Air Force Base in Mississippi, during 2003.

CAPT Noreen Hynes, M.D., USPHS, is currently working with the Food and Drug Administration on bioterrorism issues. CAPT Hynes' expertise is in international health, microbes of global and terrorism significance, and associated vaccine development.

Colonel William Lang, MC, USA, served in the White House Medical Unit during 2003; this is his second tour of duty on the Presidential Medical Staff.

Lieutenant Colonel Doug Liening, MC, USA, served as the Commander for the 21st Combat Support Hospital in Iraq during 2003; he was featured by the Wall Street Journal, *In a Tent Hospital*, on October 29, 2003, for his exceptional service; in addition, he was also featured by the London Times, *Move Over Mash - This Is Hi-Tech CASH*, on November 15, 2003.

Colonel Sean Murphy, USAF, MC, assumed command of the 325th Medical Group at Tyndall Air Force Base, Florida, during 2003.

Colonel Donn Richards, MC, USA, served as the Commander of the 115th Field Hospital based out of Fort Polk, Louisiana; his unit was deployed to Iraq, during 2003.

Commander Tom Snead, MC, USN, served as the Officer-in-Charge of the Branch Medical Clinic at the Naval Base, Ingleside, Texas, during 2003.

Colonel Don Speers, MC, USA, served as the Commander of the Patterson Army Community Hospital at Fort Monmouth, New Jersey, during 2003.

Colonel Harry Stinger, MC, USA, served as the Commander of the 250th Forward Surgical Team in Iraq, during 2003.

Class of 1986.

Colonel Kory Cornum, USAF, MC, is currently serving as the Commander of the Medical Operations Squadron at Ramstein Air Base, Germany.

Colonel Rhonda Cornum, MC, USA, is serving as the Commander of the Landstuhl Regional Medical Center in Landstuhl, Germany; this medical center is the largest United States Medical Treatment Facility in Europe.

Colonel Clifford Porter, MC, USA, served as the Commander of the 250th Forward Surgical Team (Airborne), during the early part of 2003.

Colonel Andrew Satin, USAF, MC, following a national search, was selected as the Chair of the USU SOM Department of Obstetrics and Gynecology, effective September 8, 2003. Previously, he served as the Director of the Uniformed Services Residency in Obstetrics and Gynecology and as the Vice Chair of the USU SOM Department of Obstetrics and Gynecology. Under Colonel Satin's leadership, the residency program was granted the maximum five-year accreditation by the Obstetrics and Gynecology (OBG) Residency Review Committee of the Accreditation Council for Graduate Medical Education. The residency program is the first in OBG to move from provisional status as a newly integrated program directly to the maximum accreditation of five years. It is a fully-integrated program under the institutional sponsorship of the National Capital Consortium based at the National Naval Medical Center and the Walter Reed Army Medical Center. Of the more than 250 OBG residency programs in the United States, only nine have achieved the five-year maximum accreditation.

Colonel Steven Swann, MC, USA, was assigned as the Commander of the Baynes-Jones Army Community Hospital at Fort Polk, Louisiana, during 2003.

Colonel Thomas Travis, USAF, MC, served as the Commander of the 311th Human Systems Wing at Brooks City-Base, Texas, during 2003, and was selected for O-7 in February of 2004.

Class of 1987.

CAPT Tom Grieger, MC, USN, Associate Professor, USU SOM Department of Psychiatry, was in charge of the Navy Special Psychiatric Rapid Intervention (SPRINT) Team helping out at the Pentagon and the Navy Annex following the terrorist attacks on September 11, 2001. The team provided supportive services to 2,000 active duty and civilian employees on the Navy staff. CAPT Grieger continues to provide significant support as a member of the USU Center for the Study of Traumatic Stress in the USU SOM Department of Psychiatry.

Colonel Byron Hepburn, USAF, MC, served as the Command Surgeon of the United States European Command in Stuttgart, Germany, during 2003.

Lieutenant Colonel Dallas Homas, MC, USA, a reconstructive and plastic surgeon assigned to the Tripler Army Medical Center in Honolulu, Hawaii, led a 17-member team to Cambodia for a two-week training mission in blast trauma during 2003. The area was selected because of the high numbers of unexploded ordnance and land mines still scattered about the Cambodian countryside. In addition, the group served a humanitarian purpose by offering first-class surgery and medical services to approximately 360 of Cambodia's poor, to include one farmer whose hand was nearly lost when his hoe struck a landmine. Although the individual's thumb could not be saved, the team was able to repair the rest of his hand and a punctured lung and cracked ribs.

Colonel Timothy Jex, USAF, MC, is serving as the United States Central Air Force (USCENTAF) Command Surgeon, based at Shaw Air Force Base, South Carolina. Colonel Jex is responsible for the medical planning at USCENTAF. He also manages medical war readiness materials for the USCENTAF, provides supervision, establishes policy, works logistics issues for all of the deployed medical units, handles all medical issues for the Central Air Force Combat Command, and generally provides leadership for all of the deployed medical personnel.

Lieutenant Colonel Edward Lucci, MC, USA, is the Chief of Emergency and Operational Medicine at the Walter Reed Army Medical Center (WRAMC). He was the first emergency physician to arrive on the scene after terrorists crashed American Airlines Flight 77 into the Pentagon. On staff at WRAMC since 1997, Lucci serves as the hospital's team leader for the special response team for chemical and biological events.

Lieutenant Colonel Paul Mongan, MC, USA, is serving as the Chair of the USU SOM Department of Anesthesiology. *He is the first medical school alumnus to become a Chair of a clinical department at the University.* Lieutenant Colonel Mongan has been an Anesthesiology faculty member since 1997, serving as Director of Research and Associate Professor, and for four years as Vice Chair.

Colonel Patrick St. Pierre, MC, USA, was chosen, during 2003, for a medical exchange fellowship program. Colonel St. Pierre, Assistant-Chief of Orthopaedic Surgery at the DeWitt Army Hospital at Fort Belvoir, Virginia, is the first military physician selected as winner of the 2003 American Shoulder and Elbow Surgeon's (ASES) Traveling Fellow Post. The ASES is a society of leading national and international orthopaedic surgeons specializing in surgery of the shoulder and elbow. The society is an educational body responsible for the development of scientific programs, for the organization of current knowledge, for the standardization of nomenclature, and for the publication of scientific materials. Each year, the ASES, along with their international counterparts, alternate choosing two Fellows to travel to their respective continents to confer with shoulder specialists and other Fellows. Colonel St. Pierre will make about 10 to 15 visits in countries such as Italy, Denmark, Germany, Switzerland, and France; he will participate in an average of three to five sessions at each location. Colonel St. Pierre's research has won awards from the Eastern Orthopaedic Association, the Walter Reed Army Institute of Research, the Society of Military Orthopaedic Surgeons, the Arthroscopy Association of North America, and the American Orthopaedic Society for Sports Medicine.

Colonel John Powell, MC, USA, served as the Commander of the 10th Combat Support Hospital at Fort Carson, Colorado, during 2003, leading his unit to duty in the Middle East.

Class of 1988.

Lieutenant Colonel Michael C. Edwards, USAF, MC, FACS, held dual positions as Chief of Surgical Services and Chief of the Professional Staff at the 99th Medical Group, Mike O'Callaghan Federal Hospital, Nellis Air Force Base, Nevada, during 2003.

CAPT Anderson Funke, M.D., USPHS, served as the Medical Director of the Carolina Health Centers in Greenwood, South Carolina, during 2003.

Lieutenant Colonel Roman Hayda, MC, USA, served as an Orthopaedic Trauma Surgeon at the Brooke Army Medical Center; he was featured in an interview for the McNeil-Lehrer Hour, *Healing the Wounds*, December 3, 2003, for his service caring for soldiers injured in Iraq.

Class of 1989.

Colonel John Baxter, USAF, MC, has served as the Commander of the Pentagon Flight Medicine Clinic for some years; he also serves as the physician to the Secretary of Defense. Several months prior to the terrorist attack, Colonel Baxter's clinic had conducted mass casualty training exercises in conjunction with the Pentagon DiLorenzo Clinic. The exercise simulated a plane crashing into the building; on September 11th, members of both health care facilities agreed that the simulated training had proven to be invaluable.

Two Members of the USU SOM Class of 1989, Lieutenant Colonel Duane Cespedes, USAF, MC, and **Lieutenant Colonel David Ririe, USAF, MC**, assigned to the Wilford Hall United States Air Force Medical Center at Lackland Air Force Base, Texas, during 2003, are playing a significant role in the battle against prostate cancer. In an article produced by the 59th Medical Wing Public Affairs Office, Lieutenant Colonels Cespedes and Ririe were cited as instrumental members of a team of researchers who were involved in a highly publicized, landmark study on the drug, Finasteride's (Proscar) ability to prevent prostate cancer. According to the article, Wilford Hall was the largest site, providing roughly 10 percent of the participant population, for this extensive seven-year nationwide study, named the Prostate Cancer Prevention Trial. The trial has found a 25 percent reduction in prostate cancer occurrences for healthy males taking the drug. Findings were published in the July 17, 2003 edition of The New England Journal of Medicine.

Class of 1990.

Lieutenant Colonel Bruce Adams, MC, USA, served as the Chief Resident, Department of Emergency Medicine, at the Medical College of Georgia in Augusta, Georgia, during 2003.

Lieutenant Colonel Kirk Eggleston, MC, USA, served as the Division Surgeon for the 4th Infantry Division (mechanized) in Iraq, during 2003.

Lieutenant Colonel Bill Flynn, USAF, MC, served as the Ophthalmology Residency Program Director at the Wilford Hall United States Air Force Medical Center, Lackland Air Force Base, Texas,

during 2003; he was featured by the 409th Air Expeditionary Group Public Affairs Office on September 17, 2003, for his efforts in a multi-national humanitarian assistance exercise, which took place in the Republic of Georgia.

Lieutenant Colonel John McGrath, MC, USA, served as the Division Surgeon for the 1st Armored Division in Iraq, during 2003.

Class of 1991.

Commander Katy Ciacco-Palatianos, M.D., USPHS, holds an increasingly important headquarters position as the Principal Risk Management Consultant. She represents the Indian Health Service (IHS) at Health and Human Services (HHS) and at interdepartmental meetings involving quality of care, patient safety, and workforce safety and health. She is currently representing the IHS on the USPHS Physician PAC and a variety of departmental functions. She served as the Chair of the Medical Claims Quality Review Panel for HHS for six years and worked closely with the Office of the General Counsel and Department of Justice attorneys in analyzing and defending claims of negligence at Federal facilities and their providers; she also serves as a Member of the USPHS Commissioned Corps Award Branch.

Lieutenant Colonel Bill Corr, MC, USA, served as the Division Surgeon for the 3rd Infantry Division at Fort Stewart, Georgia, during 2003, following his return from Iraq with his unit.

CAPT Karen Parko, M.D., USPHS, was one of only 18 PHS Commissioned Corps officers selected for an Exceptional Capability Promotion. She assumed the rank of Captain (O-6) on July 1, 2002. CAPT Parko, due to her assignment as the Director, Neurological Services, at the Northern Navajo Medical Center in Shiprock, New Mexico, was also selected by U.S. Medicine, a medical news organization, as one of the 10 top finalists for the Frank Brown Berry Prize in Federal Healthcare during 2003. She recently transferred to the Neurology and Rehab Service at the San Francisco Veteran's Administration Medical Center in California, where she is also serving as the Chief Clinical Consultant in Neurology for the Navajo Area Indian Health Service.

Lieutenant Colonel Paul Pasquina, MC, USA, served as the Program Director for the Physical Medicine and Rehabilitation Residency at the Walter Reed Army Medical Center during 2003. As Program Director, Lieutenant Colonel Pasquina led the department through a successful residency review by the Accreditation Council for Graduate Medical Education (ACGME).

Lieutenant Colonel Mike Place, MC, USA, served as the Division Surgeon for the 101st Airborne Division in Iraq, during 2003.

Lieutenant Colonel Bill Rice, MC, USA, served as the Director of Occupational Medicine, at the United States Army Center for Health Promotion and Preventive Medicine-Europe in Heidelberg, Germany, during 2003.

Commander Jay Scheiner, MC, USN, served in the White House Medical Unit, during 2003.

Class of 1992.

Lieutenant Colonel Chester “Trip” Buckenmaier, MC, USA, was featured in the Army Times, *Pain Blocker - Regional Anesthesia Demonstrates Promises for Treating Combat Wounds*, in April of 2004. Lieutenant Colonel Buckenmaier, Chief of the Regional Anesthesia and Pain Management Initiative at the Walter Reed Army Medical Center, is researching the use of regional anesthesia as an alternative to the traditional battlefield pain stopper, morphine; he was also featured in the London Times, *Move Over MASH - This Is High-Tech CASH*, on November 15, 2003.

Commander Noel Delmundo, M.D., USPHS, was assigned as staff in the Obstetrics and Gynecology Department at the Phoenix Indian Medical Center in Arizona, during 2003.

Lieutenant Colonel Erin Edgar, MC, USA, continued the trend of USU alumni serving in operational positions, when he served as the Division Surgeon for the 82nd Airborne Division at Fort Bragg, North Carolina, during 2003. Lieutenant Colonel Edgar has been twice promoted below zone.

Major(P) Blake Graham, MC, USA, served as the Regimental Surgeon for the 3rd Armored Cavalry Regiment in Iraq, during 2003.

Lieutenant Colonel Nelson Hager, MC, USA, serves as the Chief of the Physical Medicine and Rehabilitation Service at the Walter Reed Army Medical Center in Washington, D.C.

Lieutenant Colonel Mark Koeniger, USAF, MC, recipient of the Malcolm Grow Award for Air Force Flight Surgeon of the Year in 1998, served as the Commander of the 86th Aeromedical Squadron at the Ramstein Air Base in Germany, during 2003. He has been selected to serve on the staff of the Industrial College of the Armed Forces (ICAF).

Major(P) Kelly Murray, MC, USA, served as the Regimental Surgeon for the 2nd Armored Cavalry Regiment in Iraq, during 2003.

Lieutenant Commander John Newman, MC, USN, assigned to the USS Iwo Jima, was featured in the New York Times, *Medical Teams Fight Outbreak of Malaria Among Marines*, on September 16, 2003; the USU Parasitology and Tropical Medicine Courses, attended by Lieutenant Commander Newman, are referenced as the article explains how the outbreak was diagnosed by Lieutenant Commander Newman.

Commander Mary Porvaznik, M.D., USPHS, served as the Chief of Family Medicine at the Northern Navajo Medical Center in Shiprock, New Mexico. She supervised a department of 13 physicians who provide primary care in the Medical Center and in several community clinics outside of the Center. Besides a busy out-patient clinic, Commander Porvaznik's department also ran a busy in-patient adult and pediatric service, including an intensive care unit and full obstetrical services. Commander Porvaznik was born in the Indian Health Service Hospital in Tuba City, Arizona; her father was a physician who also served the Native American population. Commander Porvaznik's father, who completed 30 years in the Public Health Service and retired as an Assistant Surgeon General and Rear Admiral, suggested that she apply to USU. Commander Porvaznik reported that she realizes the intense training she received at the USU SOM was outstanding and the summer field training sessions were incredibly useful.

Three Members of the USU SOM Class of 1992: Commander Melanie Mitchell, MC, USN; Commander Sharon Miller, MC, USN; and, Commander William "Mike" Hall, MC, USN; along with **CAPT Raphael Roure, MC, USN, Class of 1982**, comprised four of the six physicians assigned to the Navy's First Expeditionary Medical Eunit, in Djibouti, as part of Operation Enduring Freedom, during 2003.

Class of 1993.

Commander Kimberly (Clancy) Brownell, M.D., USPHS, is serving as a Staff Pediatrician at the Northern Navajo Medical Center in Shiprock, New Mexico.

Major Brian Crownover, USAF, MC, was featured on the [*Air Force News Link*](#), *Balad* (Iraq) *Medics Aid Villagers*, on January 7, 2004; he recently returned from serving as the Chief of Clinical Services for the 332nd Expeditionary Medical Squadron, Detachment 1, in Balad, Iraq.

Commander Jeffrey Curtis, M.D., USPHS, is a Staff Physician in the Medicine/Family Practice Department at the Phoenix Indian Medical Center in Arizona.

Lieutenant Colonel Marie Dominguez, MC, USA, served as the Commander of the United States Army Health Clinic at Darmstadt, Germany, during 2003.

Major Grant Tibbetts, USAF, MC, was assigned as the Chief of Special Imaging at the 3rd Medical Group, Elmendorf Air Force Base, Alaska, during 2003.

Lieutenant Colonel Richard Trotta, MC, USA, served as the Commander of the United States Army Health Clinic in Vicenza, Italy, during 2003.

Commander Brent Warren, USPHS, M.D., is an ophthalmologist and an Assistant Professor of Surgery at USU. He helped to establish the state-of-the-art Refractive Eye Surgery Clinic at the

Walter Reed Army Medical Center in Washington, D.C., and has performed hundreds of laser vision corrective surgeries on soldiers identified for combat.

Class of 1994.

Major Richard Gullick, MC, USA, is a neurosurgeon based at the Brooke Army Medical Center; he is currently deployed to Iraq as part of the 31st Combat Support Hospital and was featured in The Washington Post, *Lasting Wounds of War - Roadside Bombs Have Devastated Troops*, on April 27, 2004.

Lieutenant Commander Staci (Valenzuela) Kelley, MC, USN, served as the Head of the Inpatient Mental Health Division of the Naval Hospital located at Great Lakes, Illinois, during 2003.

Lieutenant Commander Charles McCannon, MC, USN, who completed the Preventive Medicine Residency Program at USU, passed the Certified MBA examination and was awarded the CMBA designation by the International Certification Institute, during 2003. He is among the first group of MBAs to earn the distinction. He is one of only 86 Certified MBAs in the United States and Canada. *(There are over two million MBA graduates in the United States and Canada, with over 100,000 new graduates each year.)* The CMBA is the only professional certification designed to confirm an MBA's command of the common body of knowledge required across all accredited MBA programs.

Lieutenant Commander David P. Murphy, MC, USN, Head of the Pulmonary/Critical Care Unit, United States Naval Hospital Okinawa, received the Sparks Award for Excellence at the Navy Chapter's annual meeting in Washington, D.C., in November of 2003; this award recognizes him as the top internist in the Navy by the American College of Physicians, United States Navy Chapter.

Major Donovan Tapper, USAF, MC, served as the Chief of Surgical Specialties at the 6th Medical Group, MacDill Air Force Base, Florida, during 2003; he was deployed as part of the 332nd Expeditionary Medical Group at Tallil Air Base, Iraq, and was featured on the United States Air Force News Link, *Medical Team Helps Accident Victims*, on January 12, 2004.

Class of 1995.

Commander Christine Casey, M.D., USPHS, is now serving as an epidemiologist for the Centers for Disease Control and Prevention and works in the National Immunization Program, which has a leading role in bioterrorism surveillance/prevention.

Major Scott Earwood, MC, USA, was based out of Fort Bragg, North Carolina and deployed to Iraq, during 2003; he was featured by the Washington Post, *Soldiers Say They Remain Committed*, on November 3, 2003.

Major Shean Phelps, MC, USA, served as the Battalion Surgeon for the 1st Special Forces Battalion, 1st Special Forces Group, Panzer Kaserne, in Boeblingen, Germany, during 2003.

Major Stephanie Redding, MC, USA, was featured in the Stars and Stripes Magazine on August 17, 2003; she was recognized for her dedicated support at the 21st Combat Support Hospital in Iraq, and for her role in saving the life of an Army Non-Commissioned Officer who suffered a heart attack.

Class of 1996.

Captain Daniel Irizarry, MC, USA, served as the Regimental Surgeon for the 325th Airborne Infantry Regiment, 82nd Airborne Division, at Fort Bragg, North Carolina, during 2003, with duty in Iraq.

Lieutenant Commander John M. McCurley, MC, USN, an internist, served as a Staff Physician in the Office of the Attending Physician on Capital Hill. He is now a cardiologist and USU faculty member.

Lieutenant Commander Mark Michaud, MC, USN, served as the Senior Medical Officer aboard the *USS Emory S. Land*, a submarine tender based at Lamaddalena in Sardinia, Italy, during 2003.

Lieutenant Commander John Mohs, M.D., USPHS, was assigned to the Northern Navajo Medical Center in Shiprock, New Mexico, as the Vice Chief of Family Medicine and the Director of the Family Medicine Health Clinic, during 2003. He was responsible for scheduling, developing and maintaining practice guidelines, and for conducting performance improvement studies; there are 13 physicians and 10 nurses assigned to the clinic.

Lieutenant Commander Kimberly Mohs, M.D., USPHS, was assigned to the Northern Navajo Medical Center in Shiprock, New Mexico, as the Chief of Internal Medicine, during 2003. As such, she provided oversight for a department of six internists who provide primary care as well as cardiology and pulmonary related procedures and endoscopy. Her department also held a number of specialty clinics, including hypertension, tuberculosis, renal disease, gastroenterology, and a uranium miners' clinic, which she also supervised. The Four Corners area has been a primary site for uranium mining over the years, and the clinic mainly treats patients with lung disease or other health problems resulting from exposure to uranium.

Class of 1997.

Major Scott Brietzke, MC, USA, was featured in the Edmonton (Alberta, Canada) Journal, *Snore No More with Procedure Developed by Military Doctors*, on April 5, 2004. Major Brietzke, assigned to the Walter Reed Army Medical Center in Washington, D.C., has been developing and refining snorplasty with his colleague, Doctor Eric Mair. More than 200 patients have been treated with injection snorplasty at the center; the new procedure takes about ten minutes and is only recommended for disruptive snoring.

Class of 1998.

Lieutenant Commander Robert Johnson, MC, USN, served as a Flight Surgeon assigned to VAQ-133 and the Naval Hospital in Oak Harbor, Washington. He was selected for an Ophthalmology Residency at the Naval Medical Center in San Diego, California, in June of 2003.

Captain Jocelyn Kilgore, USAF, MC, was assigned as a Staff Psychiatrist in Germany, during 2003.

Lieutenant Commander David Lesser, MC, USN, served as a Flight Surgeon with the Navy Helicopter Squadron HSL-41 in San Diego, California, during 2003.

Class of 1999.

Lieutenant Kimberly Fagen, MC, USN, was assigned as a Flight Surgeon to the Commander, Carrier Air Wing 9, during 2003. When not deployed, Lieutenant Fagen was based at the Naval Branch Medical Clinic, Naval Air Station North Island, in San Diego, California.

Captain Philip Littlefield, MC, USA, a resident at the Tripler Army Medical Center in Hawaii, scored the highest in the Nation on the Otolaryngology In-Service Examination, during 2003.

Class of 2000.

Captain Jennifer Bager, MC, USA, a resident at the Tripler Army Medical Center in Hawaii, was among the six highest scores in the Nation on the Otolaryngology In-Service Examination, during 2003.

LT Todd Gardner, MC, USN, is now assigned as the Flight Surgeon to HMX-1, the President's Helicopter Squadron at Quantico, Virginia.

Lieutenant John Ringquist, MC, USN, was stationed at Lamaddalena in Sardinia, Italy, as the Undersea Medical Officer on board the *USS Emory S. Land*, during 2003.

Class of 2001.

Lieutenant Kenneth Terhaar, MC, USN, was assigned as a General Medical Officer with the 3rd Medical Battalion, Bravo Company, in the 3rd Fleet Service Support Group at Okinawa, Japan, during 2003.

Selected Profiles of USU School of Medicine Graduates.

Multi-Service Efforts in the Development of Trauma Training Centers.

(The following is taken from USU Medicine, *Trauma Training - from the City to the Battlefield*, Spring Issue, 2003, written by Ms. Sharon Willis, USU Alumni Affairs.)

While working on his Master Degree in Health Care Administration, **Colonel Cass Conaway, MC, USA, USU SOM Class of 1980**, recently retired during 2003, developed the concept of a collaborative military-civilian centralized trauma team site where the Army's forward surgical teams could rotate, not as individuals, but as whole units. The concept was launched in December of 1997 by Colonel Conway with the support of the current Surgeon General of the Army, Lieutenant General James Peake, who at that time was the Commander of the Army Medical Department Center and School in San Antonio, Texas. At the same time, the General Accounting Office (GAO) published a report recommending that military personnel should use civilian trauma centers as a source for medical readiness training. In September of 1998, a 30-day pilot rotation and study was conducted at the Ben Taub General Hospital in Houston, Texas, bringing together physicians, nurses, nurse anesthetists, medics and administrators for the team training. The pilot study was hugely successful and all three Services, in February of 1999, agreed to establish the Joint Trauma Training Center at the Ben Taub General Hospital. The center opened in July of 1999, and during the next two years, forward surgical teams from each Service rotated through with great success. Unfortunately, the patient load was not sufficient to sustain the program at Ben Taub; however, the Services decided to continue the team-centered Trauma Training Center concept and opened training centers, during 2002.

Colonel Thomas Knuth, MC, USA, USU SOM Class of 1984, is a trauma surgeon and leads the Army's trauma program at the Ryder Trauma Center in Miami, Florida.

Commander Peter Rhee, MC, USN, USU SOM Class of 1987, is a trauma surgeon who spearheads the Navy's trauma program at the L.A. County Hospital-USC Medical Center in Los Angeles, California.

Lieutenant Colonel Bill Beninati, USAF, MC, USU SOM Class of 1988, is a pulmonologist and the Medical Director of the Air Force CSTARS Program at the R. Adams Cowley Shock Trauma Center in Baltimore, Maryland.

While each of the three leaders in trauma medicine believes that a Service-unique program should be maintained for each Service, all agree on a shared goal of ensuring that military medical professionals have the clinical skills necessary to sustain themselves during deployment and are adequately prepared to work together as a team during combat conditions.

Army.

The Ryder Trauma Center, the Baltimore Shock Trauma and the Las Vegas University Medical Center are the only three freestanding trauma hospitals in the Nation. The Ryder Trauma Center has a trauma resuscitation unit with five bays and six critical care observation beds, and six trauma operating rooms that simulate the forward surgical team environment where vehicle accidents, gunshot wounds, stabbings, industrial accidents and crush injuries (*the same type of injuries seen in military combat zones*) are seen, making Ryder an ideal site for a military training program. Co-located is the Jackson Memorial Hospital's Emergency Room that sees over 130,000 patients per year. The Army Trauma Training Program (ATTP) was established in January of 2002, with seven full-time staff members. **Colonel Thomas Knuth, MC, USA, USU SOM Class of 1984**, is the only physician assigned to the program. As the Program Director, he is assisted by a nurse anesthetist, intensive care unit, emergency room and operating room nurses, a non-commissioned officer, and a Medical Service Corps administrator. Program attendees, referred to as *rotators*, all have assignments as members of an Army forward surgical team and provide front-line medical care during combat. They train together as an established team; the training focuses on the team approach. The leadership and organizational skills of the team leaders are regarded to be just as important as their clinical skills. Each 20 person team includes three general surgeons, an orthopaedic surgeon, an operating room nurse, an emergency room nurse, two nurse anesthetists, an administrator, and 10 enlisted medics. The physicians and nurses generally come from Army hospitals, while the medics are usually assigned at operational units. In addition, the ATTP trains reserve component forward surgical teams. The active duty teams complete a 30-day rotation, while the reservists remain for two weeks. The ATTP starts out with an assessment of skills and leadership abilities, for which feedback is provided. Availability, communication, teaching, mentoring, and assertiveness qualities are essential for the team members. The ATTP works in conjunction with the University of Miami SOM's physiology laboratory to create a mass casualty situation on the rotators' first day; they create a combat scenario with casualties expected. The rotators triage, resuscitate and operate; there are two tables and just like a forward surgical team, the rotators are expected to exercise command and control functions and skills. The ATTP members enjoy a positive working relationship with their civilian counterparts at Ryder; enlisted medics rotating through the ATTP are provided ample training opportunities in the emergency room. At the end of the rotation, teams experience the *Super Bowl*, an event initiated by Colonel Cass Conaway. During a 48-hour period, all patient activity is turned over to the Army. The civilian staff is present, but the Army makes all of the management decisions involved in patient resuscitations, operations, and recovery. In addition, rotators go through a *notational evacuation* exercise that involves admitting a patient and arranging for evacuation by contacting the Brooks City-Base in Texas to request a Critical Care Air Transport Team. The *Super Bowl* tests team leadership abilities and assesses work/sleep cycle capabilities.

Navy.

The trauma center located at the 600-bed L.A. County Hospital and USC Medical Center has one of the highest volumes of trauma cases in the country, over 7,000 per year. And, it serves as an

excellent location for the Navy Trauma Training Center (NTTC). **Commander Peter Rhee, MC, USN, USU SOM Class of 1987**, as the NTTC Director, heads a 10-person naval staff that also includes an anesthesiologist (**Lieutenant Commander Orlando Ricci, MC, USN, USU SOM Class of 1993**), an orthopaedic surgeon, an emergency physician, an emergency room nurse, an intensive care unit nurse, an operating room nurse, an operating room technician, an independent duty corpsman, and an administrative Medical Service Corps officer, all of whom reported for duty in May of 2002. The first group of rotators arrived in September of 2002 and since then, four additional classes have been trained. The NTTC teams consist of 24 members: 12 *green* who are assigned to forward resuscitative surgical units (FRSS) or shock trauma platoons, and 12 *blue* who are members of fleet surgical teams aboard casualty receiving transport ships. The FRSS teams are deployed far forward on the battlefield; and, the shock trauma platoons are even closer to the front lines. While surgeons have a significant role, the corpsmen and nurses form the basis of the team. The NTTC trains teams just prior to deployment. Rotators spend a month in the program, which consists of didactics, case studies, skills stations, and simulations with mannequins, as well as plenty of hands-on trauma patient care. The majority of the rotators have not had recent trauma experience upon their arrival at the NTTC. As the Navy hospitals do not routinely take care of trauma patients, providers require real-life experience. The NTCC provides *just-in-time* training and experience before the providers are deployed. Rotators work five days a week and on average 12 hours per day. Surgeons are on call every three days; NTTC staff suggest that personnel who are not prepared academically, mentally, and physically will jeopardize the team, the mission, and most importantly, patient care. As with the Army, the NTTC program includes operating room days. The hospital opens a separate operating room and staffs it with Navy personnel. In addition, throughout the program, Navy team members receive emergency room experience and rotate through the intensive care and burn units and the operating room; they also ride with ambulance crews. The NTTC program includes didactic information for the Marine Corps and the Navy that is not applicable to the Army or the Air Force; cross-training can be provided for logistical purposes, as appropriate. Blunt trauma and critical care transport is Air Force specific; and, the Army provides general surgery and support for humanitarian missions.

Air Force.

The Air Force Trauma Training Center, referred to as *CSTARS*, is located within the University of Maryland's R. Adams Cowley Shock Trauma Center in Baltimore, Maryland. It is a 210-bed, freestanding hospital facility; the center sees between 6,500 to 7,000 patients annually; 100 percent of those patients arrive via state police helicopters, paramedic ambulances, or are transferred from intensive care units at other hospitals. **Lieutenant Colonel Bill Beninati, USAF, MC, USU SOM Class of 1988**, serves as the Medical Director of the Air Force CSTARS Program.

The CSTARS - Coalition for Sustainment of Trauma and Readiness Skills - Program is comprised of 14 full-time Air Force staff members. In addition to Lieutenant Colonel Beninati, there are six physicians (including **Major Jeffrey Johnson, USAF, MC, USU SOM Class of 1993**), a trauma surgeon, an emergency physician (**Major Shawn Varney, USAF, MC, USU SOM Class of 1993**), a nurse anesthetist (**Captain John Killpack, USU GSN Class of 2002**), intensive care unit, trauma and operating room nurses, two medical technicians, and one administrative officer. Although most hospital

staff members at the Shock Trauma wear their trademark pink scrubs, CSTARS staff are readily identifiable by their lab coats, which are embroidered with the Air Force insignia. While Lieutenant General Paul K. Carlton served as the Surgeon General, there was a large effort toward making Air Force Medical Centers serve as major operational medicine platforms. The Readiness Skills Verification Program, or RSVP, was established; and, one of its major tasks was to develop a list of critical skills that health care providers would need when deployed, so that they would be immediately deployable to a combat theater of operations. The end result was that a significant gap was identified between required battlefield skills and those generally possessed by health care providers. The solution was CSTARS, led by a USU SOM alumnus. Air Force members assigned to Critical Care Air Transport Teams, or EMEDS, spend between three to four weeks in CSTARS, which is designed to enhance their skills in the care of critically injured or ill patients. Physician assignments last approximately 34 days, while enlisted technicians stay only 21 days. Lieutenant Colonel Beninati explained that the medic's rotation was initially longer; however, they are subject to nurse licensure regulations in Maryland, limiting their hands-on experience. Air Force Medics enter CTARS and perform a pre-hospital trauma life support rotation in the trauma resuscitation unit; and, they ride with the Baltimore City Fire Department along with the paramedics, which allows for additional hands-on care. Nurses and surgical technicians remain for approximately 25 days and work primarily at night when crime-related traumatic injuries occur in the city. Nurses can earn up to 240 contact hours of continuing education credit. Physicians attend noon lectures each day, and there is also a military-only journal club for CSTARS participants. Physicians have the potential to earn up to 70 hours of continuing medical education (CME) credit; however, due to calls (emergency patients), lectures, and other demands, they generally earn less hours of CME credit. Medics can earn approximately 26 credit hours. Rotators are integrated into the hospital, just like the residents or fellows. When a call comes in, they take a specific position around the table. On the next call, they rotate positions, depending on the type of case, which comes in, or the level and volume of activity in the trauma unit. The most common injuries seen at Shock Trauma are blunt trauma injuries. Everything required to treat these patients is available in the trauma resuscitation unit. The trauma resuscitation unit has 10 standardized trauma bays, a lab, radiology, a CT scan, and six dedicated operating rooms; everything that could be required during the critical 60 minutes immediately following a serious injury. Unlike the Army and Navy Programs, the CSTARS Program trains only active duty members. A separate, two-week program for reservists is housed in Cincinnati, Ohio. In addition to CSTARS' role in enhancing clinical skills, the Program staff is aiding in homeland security, providing teaching assistance through international engagement missions, and conducting research. Recently, CSTARS staff participated in a disaster drill with hospital personnel. Through the use of their Small Portable Expeditionary Aeromedical Rapid Response (SPEAR) team equipment, CSTARS personnel were able to set up a portable hospital in the street for decontamination and medical care.

United States Public Health Service.

CAPT Karen Parko, M.D., M.D., USPHS, USU SOM Class of 1991, was recognized by U.S. Medicine, a medical news organization, as one of the ten top finalists for the 2003 Frank Brown Berry Prize in Federal Healthcare. She was also one of only two physician officers in the USPHS Commissioned Corps selected for an Exceptional Capability Promotion and assumed the rank of Captain

(0-6) on July 1, 2002. CAPT Parko recently transferred to the Neurology and Rehab Service at the San Francisco Veteran's Administration Medical Center in California, where she is also serving as the Chief Clinical Consultant in Neurology for the Navajo Area Indian Health Service. In Captain Parko's previous assignment, she served as the Chief of Neurology Services for the Northern Navajo Medical Center in Shiprock, New Mexico, where she was the sole neurologist for the Indian Health Service in the lower 48 United States. CAPT Parko frequently travelled to other service units on the Navajo reservation to help with neurology services and to educate other physicians in the care of neurological problems and she also established specialty seizure and Parkinson's clinics for the area patients. In addition, CAPT Parko ran a neuro-diagnostic laboratory and performed nerve conduction studies and electromyography, as well as electroencephalograms; and, her responsibilities included administrative committee work along with serving as a neurology tort claim reviewer for the Public Health Service. CAPT Parko has pointed out that her experience at USU provided her with a good overview of medicine and how it can be applied in different settings; and, that the wide scope of medicine taught at the USU SOM has left her prepared to handle multiple medical situations outside of her specialty.

FACULTY OF THE SCHOOL OF MEDICINE.

The University's academic programs are consistent with its mission. In particular, the Team notes: the professionalism of the programs, the objectives to develop the student's intellectual and leadership skills, which are prerequisites for strong foundations in medicine, nursing, the biomedical sciences and public health services, and the credentials of the faculty... The faculty demonstrates a strong sense of commitment to the institution, its students and mission. The faculty is uncommonly sensitive to strengths and needs of their students and the students expressed their recognition of this and reciprocal feelings to team members. Faculty is provided several avenues, through the use of an academic pathway system, to establish scholarship and is provided guidance and flexibility so that they can advance in academic rank regardless of eligibility for tenure. The use of this system is regarded as an exemplar to other medical schools. An extensive description and analysis of the USU experience with this system was published in the journal, Academic Medicine.

- **Evaluation Team of the Middle States Commission on Higher Education**, Report to the Faculty, Administration, Trustees, Students of the Uniformed Services University of the Health Sciences, April 2, 2003, pages 4, 7, and 8.

Composition. As of November 2003, the School of Medicine had 311 full time assigned faculty members: 196 civilians; and, 115 uniformed officers (*of note, in November of 2003, recruitment was underway for 12 faculty positions within the SOM*). There are approximately 3,960 non-billeted or off-campus faculty who assist in the USU programs of which 1,133 are civilians and 2,827 are uniformed officers.

SOM Clinical and Consultative Services Generate an Estimated \$11,921,885 in Cost Avoidance for DoD in Fiscal Year 2003. The affiliated Medical Treatment Facilities (MTFs) in the National Capital Region (the National Naval Medical Center (NNMC), the Walter Reed Army Medical Center (WRAMC), and the Malcolm Grow Air Force Medical Center (MGMC) use the services of the USU faculty for the provision of health care.

The USU SOM civilian and military clinical faculty members, as a part of maintaining their credentials and level of proficiency, provide medical services and consultation to the hospital patients and staff and teach and supervise residents. In order to meet national accreditation standards, all teaching hospitals must provide both patient care and teaching/supervision of medical students, interns, and resident physicians. Cost avoidance in the Department of Defense (DoD) is generated by the hours of clinical service and medical expertise provided by the USU civilian and military faculty. Thirteen USU SOM academic departments (Anesthesiology, Dermatology, Family Medicine, Department of Medicine, Military and Emergency Medicine, Neurology, Obstetrics and Gynecology, Pathology, Pediatrics,

Preventive Medicine and Biometrics, Psychiatry, Radiology and Nuclear Medicine, and Surgery) provided clinical and consultative support to DoD that totalled some 144,159 hours in 2003, with an estimated cost avoidance of \$11,921,885. Without the patient care and special services provided by the USU SOM faculty throughout the DoD medical facilities, the military hospitals, clinics, and other facilities would find it necessary to augment their medical staffs by 144,159 work hours in order to maintain the level of patient care within the direct care system.

(Note: the total cost avoidance reported by USU for clinical care also included 3,448 hours of clinical services provided by the Graduate School of Nursing at a manpower cost of \$268,490, which resulted in the provision of an overall total of 147,607 hours of clinical services and generated a USU-wide manpower cost-avoidance for DoD of \$12,190,375 during 2003.)

USU SOM Faculty Achieve National and International Recognition.

USU's Public Health Program, with its emphasis on community health, ranks sixth in the Nation according to U.S. News & World Report's 2004 Rankings of America's Best Graduate Schools... "USU's program ranked just below Tufts University, the Medical College of Wisconsin, Northwestern University, Oregon State University and the University of Rochester on the list of the top ten community health master or doctorate programs."

- USU Medicine, U.S. News & World Report Ranks USU Graduate Program in Top Six, Fall 2003, page 5.

The SOM faculty members are regularly selected to serve on various study sections for the National Institutes of Health and for other research-granting agencies. Many faculty members, due to their national/international reputations are: 1) selected for editorial boards; 2) designated to serve as consultants or advisors to the White House, the Office of the Secretary of Defense, international schools of medicine (e.g., China, France, Japan, Mexico, Poland, Russia, Thailand, etc.), and numerous Federal Agencies; 3) requested to give invited lectures and to serve on Federal, national, and international committees; and, 4) recognized as senior officers in a wide variety of professional organizations. A number of basic science and clinical faculty hold senior and deputy editor positions on journals representing their disciplines and specialties. Overall, the SOM faculty has clearly achieved recognition with its peers across disciplines and specialties. USU SOM faculty are routinely chosen to serve on university, military, and Federal and professional organization committees in a variety of leadership and service capacities. Due to the unique nature of the USUHS SOM mission and certain of its departments, faculty in the Departments of Military and Emergency Medicine, Preventive Medicine and Biometrics, Psychiatry, and Medical History have achieved national and international recognition in the military unique practice of medicine (*Appendix C provides examples of individual achievements and recognition*).

Essential Science Indicators, an ISI evaluation tool, ranks the top journals and nations, and the top 1 percent of scientists, institutions and companies by field of research. To even be listed in any one category, an institution has to be in the top 1 percent by number of citations in the period covered by Essential Science Indicators (ESI). For the period covering the last ten years, USU ranked in the top 1 percent in seven fields: Clinical Medicine; Immunology; Biology & Biochemistry; Microbiology; Neuroscience & Behavior; Psychiatry/Psychology; and, General Social Sciences. This ranking is based on the number of citations received by papers published by USU faculty in the period.

- **Ms. Ursula Scott, Assistant Vice President, USU Learning Resource Center, *Essential Science Indicators and USU*, February 17, 2004.**

As USU medical students complete their third and fourth-year clinical clerkships at over 22 military hospitals, representing the entire spectrum of the MHS, the majority of the SOM clinical faculty are located at the teaching hospitals. The large number of enthusiastic, well-trained primary care and specialist clinicians, based at the hospitals throughout the Military Health System, is an invaluable resource for teaching medical students. Under the oversight and guidance of clinical clerkship directors, this large faculty does an excellent job of medical student clinical training, based on surveys of both students and department chairs. To further enhance communication and cooperation between the USU SOM and its 22 affiliated teaching facilities, the Office of the Associate Dean for Clinical Affairs (ADA) provides oversight for relationships and interactions between the SOM and its clinical teaching sites. Issues of concern from all parties are readily addressed as changes in the military health care delivery system are implemented. More specifically, the ADA visits the major Military Medical Centers on a regular basis and reevaluates and updates the SOM's affiliation agreements with its major teaching affiliates; this ensures that the agreements are consistent with the requirements of the Liaison Committee on Medical Education (LCME) and with the current needs of the Military Medical Centers, the Military Services, and USU. This process has ensured that clear routes of communication exist and that areas of mutual interest are appropriately defined and addressed, all of which has resulted in a positive relationship between the SOM and its numerous clinical sites. A number of the hospital-based faculty are also involved in clinical research programs through the active clinical investigation programs based at the teaching hospitals.

Outcome data such as student-reported satisfaction, student performance on National Board examinations, hospital commanders' overall satisfaction with the performance of USU graduates, and the large percentage of operational and leadership positions held by USU graduates throughout the Military Health System, indicate that the SOM faculty is performing a stable and highly satisfactory job of educating medical students for the Uniformed Services.

Collaborative Efforts.

Teaching. Cooperation in teaching has been systematically developed within the departments, between departments, and within subspecialties, to improve the educational experience of both medical and graduate students (*the SOM faculty also provides the instructional base for the Graduate Education Programs at the University*). The composite curriculum in behavioral sciences, drawing on Neurology, Psychiatry, and Medical Psychology, is a significant example of interdepartmental cooperation in undergraduate medical education.

The graduate education programs in Neuroscience, Molecular and Cell Biology, and the newly established Interdisciplinary Graduate Program in Emerging Infectious Diseases (EID) illustrate a sound cooperative relationship in research and graduate education (*Section IV of this report provides detailed descriptions of these Graduate Education Programs. For example, the EID Program leading to the Doctoral Degree offers courses on the agents and effects of bioterrorism; to date, this program is one of the only graduate programs in the Nation to offer formal training in this critical area*). The Tumor Biology Program, an interdepartmental effort between the Departments of Pathology and Surgery, serves as a bridge between basic science and clinical practice in Medical Oncology. The special interest groups in curriculum studies have resulted in basic science input into the hospitals, with collaboration in research, and more importantly, with collaboration in teaching, as the basic scientists provide science instruction to the medical house officers and junior faculty within certain subspecialties of mutual interest. In addition, faculty members use electronic mail and computer bulletin boards quite extensively, which also enhances their collaborative efforts throughout the Military Health System.

The Department of Anatomy, Physiology and Genetics. A significant change took place over the past four years in the academic structure of the USU SOM. The Department of Anatomy and Cell Biology and the Department of Physiology were formally merged to create the Department of Anatomy, Physiology and Genetics (APG). The philosophy of the newly formed department conforms with the mission and goals of the USU Strategic Plan. The philosophy is based upon a commitment to the highest level of excellence in teaching, research, and administration. The departmental merger has consolidated the teaching, research, and administrative functions of a substantial component of the University within a single faculty group under the leadership of a single Department Chair. Integration of the formerly separate anatomy and physiology curricula is resulting in a comprehensive, cohesive and dynamic educational experience that spans the entire first year of medical education. As expected, the departmental merger is yielding benefits beyond the immediate outcomes of curriculum integration.

A focus on How the Human Body Functions as a Self-Regulating System. A goal of APG is to integrate the information explosion resulting from the Human Genome Initiative and a myriad of cellular and molecular biological approaches, so that biomedicine explains how the human body functions as an integrated self-regulating system. The systems biology approach is seen as a means to further improve the information transfer process for the major responsibility of APG - the education of USU medical and graduate students. The Basic Anatomy and Physiology Courses have been integrated and are providing students with a comprehensive understanding of tissue and organ function. The APG faculty members oversee courses that extend for the entire first academic year; in fact, first-year medical students spend

approximately 53 percent of their first year of medical education with APG faculty. APG has organized its basic instruction into three modules. ***Introduction to Structure and Function*** introduces the student to cell classification, organelle function, and cellular processes, followed by study of the gross anatomy of the human body. An emphasis is placed upon understanding anatomical relationships and the causes and functional consequences of anomalies arising from disease processes. Gross anatomical study of the head and neck region, neuroanatomy, and basic clinical neurology are taught in the second module, ***Clinical Head and Neck and Functional Neuroscience***. Clinical cases are presented and case studies are assigned to students to reinforce their understanding of neurological function. Then, the students return to cellular and subcellular analysis in the third module, ***Structure and Function of Organ Systems***. This module presents an integrated approach to understanding the functions of different cells and organ systems, which include: the functions of muscle; heart; endocrine systems; kidney; respiration; gastrointestinal physiology; hematology; and, reproduction. Again, basic principles are emphasized to underscore clinical relevance. These educational experiences have been overwhelmingly lauded by both medical and graduate students.

The APG Department oversees other educational programs for medical and graduate education. In addition to faculty participation in graduate courses offered by various Ph.D. Programs at the University, APG faculty members, in a collaborative project with the National Naval Medical Center (NNMC) Department of Anesthesiology and the USU SOM Department of Anesthesiology, operate the Patient Simulation Laboratory (PSL). Since its inception in 1997, the PSL has created and presented patient simulation-based clinical education for USU students as well as for clinicians from local military treatment facilities. To extend the reach of the simulation-based education, the PSL recently installed an ultra-high speed Internet-2 Advanced Distance Education Network throughout USU with links to NNMC and the National Library of Medicine. APG faculty are also active members of two USU interdisciplinary programs: the Molecular and Cell Biology and the Neuroscience Graduate Programs. Many graduate students in these programs are undertaking their thesis research in APG laboratories. Future educational initiatives are in the planning stage. APG faculty members are preparing a Clinical Genetics Curriculum that will be an addition to the clinical course instruction of the fourth-year medical students.

This newly integrated Department, with over 100 members, offers wide-ranging, varied and collaborative research programs; and, these research programs study many fundamental biological problems. The APG research programs employ a wide range of anatomical, electrophysiological, biochemical, cellular and molecular biological methods to address medical problems associated with neurodegenerative disorders, such as: Multiple Sclerosis; Parkinson's Disease and Alzheimer's Disease; Down Syndrome; Canavan Disease; and, central and peripheral nerve injury. Faculty members also have active research programs in hypertension and cardiovascular pathophysiology, neuroimmune responses of gastrointestinal function, and understanding metabolic disorders such as Cystic Fibrosis and Diabetes. Studies within the Department focus on: the regulation of neuronal gene expression; biological clock mechanisms; neuroendocrine secretory processes; the role of glial cells in CNS injury and disease; traumatic brain injury; hemorrhagic shock; and, neuronal regeneration and plasticity. Several programs employ state-of-the-art approaches, to include: cell therapy using engineered cells; gene therapy using viral and chemical vectors; knock-out and transgenic mouse models; and, microarray and mass spectrometry technologies. The Department's research funding is supported by the National Institutes of Health, the National Science Foundation, the United States Air Force, the Juvenile Diabetes Foundation, the Cystic Fibrosis Foundation, the Department of Defense/Veterans Head Injury Program, as well as the USU Intramural Grants Program.

Interdisciplinary Research Programs. The research and development goals of the USU strategic plan are to build, sustain, and publicize interdisciplinary research programs relevant to the needs of the Uniformed Services. In addition to the above-described research in the newly integrated Department of APG, there are three interdisciplinary research programs at USU: 1) ***Emerging Infectious Diseases.*** Initially, a special interest group from the USU SOM Departments of Microbiology and Immunology (MIC) and Preventive Medicine and Biometrics (PMB), to include faculty from other departments who were interested in infectious diseases, began meeting and successfully submitted a proposal for an NIH training grant in this area. This effort led, in 1999, to the establishment of the Emerging Infectious Diseases (EID) Graduate Program with seven inaugural graduate students matriculating in the Fall of 2000. Since then, 24 uniformed and civilian students have entered the program, to include eight students who entered the EID Program in the Fall of 2003. The EID Program has three academic tracks within the field of emerging infectious diseases: microbiology and immunology; pathology; and, preventive medicine/parasitology, with primary interest in the contemporary approaches to the study of molecular biology, pathogenesis, and host responses within the context of emerging and re-emerging infectious diseases. The establishment of this program at USU by the SOM formally recognizes the breadth of disciplines spanned by emerging infectious diseases and the extent to which advances in these areas can affect the current and future health of individuals within the United States and also in the global arena. The implementation of an interdisciplinary and interdepartmental Program in Emerging and Infectious Diseases broadens and enhances the overall educational objectives of USU and brings together faculty and students in a scientific community designed to stimulate and promote collaborative interactions. **Eleanor S. Metcalf, Ph.D., Professor, USU SOM Department of Microbiology and Immunology,** is the Program Director; she can be contacted by e-mail at <emetcalf@usuhs.mil> or at <www.usuhs.mil/mic/eid.html>; 2) ***Molecular and Cell Biology.*** An Interdisciplinary Program, in Molecular and Cell Biology (including Genetics), was developed in 1993, to contribute to cross-disciplinary interactions and to develop the critical skills needed for data presentation and analysis; the program also includes a seminar series and a journal club, all of which support the Ph.D. Program. This interdisciplinary Ph.D. Degree Program offers training to address many of the fundamental questions of modern biology ranging from protein-nucleic acid interactions to cytokines, growth factors, and developmental biology. Research areas include: molecular biology of lymphocyte interactions; host-pathogen interactions; cell surface, cytoplasmic and nuclear receptor signaling pathways, exocrine secretory processes; and, gene targeting in mice to include a transgenic mouse facility for targeted gene disruption using homologous recombination. Five students entered the program in the Fall of 2003; and, two Doctoral Degrees were granted during USU's May 2003 Commencement Ceremonies. **Jeffrey M. Harmon, Ph.D., Professor, USU SOM Department of Pharmacology,** was appointed as the third Director of the Molecular and Cell Biology (MCB) Program; he oversees the studies of the MCB students and coordinates with over 40 MCB faculty members. He can be contacted by e-mail at <jharmon@usuhs.mil> or <www.usuhs.mil/mcb/index.html>; and, 3) ***Neuroscience.*** The Interdisciplinary Program in Neuroscience and its Ph.D. Graduate Program are supported by faculty members whose primary appointments are established throughout the SOM departments. It provides a seminar series and flexible program of courses and research areas for graduate students and postdoctoral fellows who have strong training in the biological, behavioral, and/or physical sciences. Research areas strongly represented by faculty include: development, regeneration, and plasticity in the nervous system; molecular neurobiology; and, adaptive responses of the nervous system to stress, injury, and a changing environment. Integrated interdisciplinary instruction in the development, structure, function, and pathology of the nervous system and its interaction with

the environment is also included. Four students entered the program in the Fall of 2003; and, three individuals received Doctoral Degrees during USU's May 2003 Commencement Ceremonies. **Regina C. Armstrong, Ph.D., Professor, USU SOM Department of Anatomy, Physiology and Genetics**, is the Director of the Neuroscience Program with over 40 participating faculty members; Doctor Armstrong can be contacted by e-mail at <rarmstrong@usuhs.mil> or at <www.usuhs.mil/nes/home.html>.

Selected Profiles of USU School of Medicine Faculty.

As Founding Chairman, Dr. Rich was faced with the difficult task of establishing a Department of Surgery at a University where the campus had not yet been constructed. From the outset, Dr. Rich and his considerable reputation gave credibility to the newly established Uniformed Services University of the Health Sciences (USUHS) and enabled the recruitment of a competent faculty for its new Department of Surgery. He utilized his collaborative relationships, both nationally and internationally, to strengthen his department's curricula and lectures and thereby provided a military and academically unique environment for the over 3,400 USUHS medical school graduates and thousands more future uniformed medical students. Dr. Rich can take pride in having developed an academically sound curriculum, recruiting competent faculty with military unique expertise, meeting the initial and on-going accreditation requirements for the School of Medicine, and creating a sound national and global reputation for the University. His efforts have aided the School of Medicine in attaining full accreditation and he has helped shape USUHS graduates into what the Secretary of Defense has dubbed *the backbone of the Military Health System*. Indeed, his efforts are reflected in the continued success of USUHS and its graduates and in the millions of uniformed personnel and their families who have benefited from his extraordinary expertise... Our Nation can be proud of Dr. Rich's long and distinguished career of service... and, I am pleased to join with his family, friends and colleagues in expressing appreciation for the significant contributions he has made to the health of the Uniformed Services and that of all citizens.

- **The Honorable Paul S. Sarbanes, United States Senator from Maryland, Congressional Record, *Tribute to Norman M. Rich, M.D.*, March 23, 2004, page S2994.**

New Director Is Appointed for the Armed Forces Radiobiology Research Institute. Colonel David G. Jarrett, MC, USA, became the 14th Director of the Armed Forces Radiobiology Research Institute (AFRRI) during the Summer of 2003. *(He replaced Colonel Robert R. Eng, who had served in the position since December of 1997; Colonel Eng is now the Director of the Proponency Office for Preventive Medicine at the United States Army Medical Command in Fort Sam Houston, Texas.)* Colonel Jarrett came to AFRRI from his previous assignment as the Head of Doctrine Development for the Medical Operations Division of the United States Army Medical Research Institute for Infectious Diseases at Fort Detrick, Maryland, where he also served as the Flight Surgeon in charge of the Aero-Medical Isolation Team. Colonel Jarrett earned the Doctor of Medicine Degree at the Indiana University School of Medicine in 1973. He subsequently trained in Obstetrics and Gynecology at the Charity Hospitals of Louisiana in New Orleans and is board-certified in emergency medicine. Colonel Jarrett is well versed in the AFRRI mission, having served the institute previously as: the Head of Military Medical Operations; Senior Instructor for the Medical Effects of Ionizing Radiation (MEIR) Course; Chief Physician for the Incident Response Team; and, the Medical Team Chief for the Emergency Medical Radiobiology Assistance Team. Other key assignments include serving as the Nuclear Casualty Management Delegate to the Nuclear, Biological, Chemical (NBC) Medical Working Party and the Nuclear Casualty Advisor

for the Joint Chiefs of Staff (J-4 Medical), in Brussels, Belgium. He has authored various publications, presentations, videotapes, and CD-ROMs including: the MEIR Course Book; the Medical Management of Radiological Casualties Handbook; the NATO Handbook on the Medical Aspects of NBC Defensive Operations, Volume 1; and, the MEIR CD-ROM.

Two USU SOM Department Chairs Have NIH Grants Renewed for 22 and 21 Consecutive Years. A common measure of research success is the length of time that an investigator has had his or her research funded by the same entity. Since most Federal agencies fund proposals in two- to five-year increments, someone who has kept a grant for a decade or more is recognized for his/her excellence in peer-reviewed research. Two USU SOM Department Chairs have had their research continuously funded by the National Institutes of Health (NIH) for 22 and 21 years. **Doctor Brian Cox, Ph.D., Professor and Chair, USU SOM Department of Pharmacology**, had his NIH R01 research grant renewed during 2003; with this renewal, Doctor Cox has now had his research funded for 22 continuous years. Doctor Cox's grant support has been provided by the National Institute on Drug Abuse and is entitled, *N/OFG Expression and Neural Injury*. His research has focused on mechanisms of morphine tolerance and dependency. Both of these aspects are poorly understood despite their importance in understanding pain management and the treatment of addiction. Over the years, his research has focused on increasing the understanding of the actions and potential therapeutic uses of opiate drugs, such as morphine, and of the natural systems in the brain on which this type of drug normally acts. Doctor Cox is studying opioid peptides that are present during development and that are widely distributed in the adult brain; the current peptide that he is studying plays a role in the neural response to injury. His studies have demonstrated that this peptide and its receptor partners play a role in reducing neural cell survival after seizures and chemical injury. Doctor Cox is currently attempting to identify the major products and biochemical partners in this pathway under resting conditions and to determine the relative concentrations of the biologically active molecules after seizures or other stimuli. His long-term goal is to determine the mechanism of neurotoxicity following seizure or exposure to toxins and/or drugs, which could lead to novel developments of neuroprotective therapies.

Also recognized for her successful research is **Alison O'Brien, Ph.D., Professor and Chair, USU SOM Department of Microbiology and Immunology**; she has received funding for the 21st year to continue her studies on Shiga toxin-producing *Escherichia coli* (STEC). Doctor O'Brien was awarded \$1.9 million through an NIH R01 grant for STEC research to be conducted over the next five years. Her studies will include the epidemiology, virulence factors, and host-bacterial interactions of Shiga toxin-producing *Escherichia coli* that contribute to their pathogenicity in humans. Doctor O'Brien is an internationally recognized expert in Shiga toxin and STECs - food-borne pathogens for which cattle are the reservoir. Humans become infected through ingestion of contaminated beef, agricultural products, and water; infection caused by STEC is responsible for 100,000 cases of bloody diarrhea per year in the United States. These infections can lead to the potentially life-threatening hemolytic uremic syndrome, particularly in young children. Doctor O'Brien is credited with several seminal studies in the biology and pathogenicity of STEC. In addition, she will continue the development of novel plant-based edible vaccines for the prevention of colonization in livestock and the protection of humans against infection and disease associated with Shiga toxin-producing *E. coli*.

USU Participates in a Regional Center of Excellence for Biodefense and Emerging Infectious Diseases Research. USU is part of a Middle Atlantic Region University Consortium that was recently selected by Health and Human Services (HHS) as one of eight Regional Centers of Excellence (RCE) for Biodefense and Emerging Infectious Diseases Research in the Nation. The RCEs were awarded close to \$350 million in grants for a five-year period. **Alison O'Brien, Ph.D., Professor and Chair, USU SOM Department of Microbiology and Immunology; Christopher Broder, Ph.D., USU SOM Assistant Professor of Microbiology and Immunology; and, CAPT Gerald V. Quinnan, M.D., USPHS, Professor and Chair, USU SOM Department of Preventive Medicine and Biometrics,** are the participating investigators from USU. They are part of 60-plus scientists in the Middle Atlantic RCE who will serve either as investigators, co-investigators, or collaborators. *Doctor O'Brien is also one of five members on the Middle Atlantic RCE Executive Committee, which will provide senior coordination to the RCE.* USU is one of the major components of the Middle Atlantic RCE. The University will be doing research, be represented on the Executive Committee, and be involved in all aspects of the RCE activities. This is a superb opportunity for the University to be part of the leadership in biodefense research; it represents the opportunity for USU investigators to grow and develop research on the prevention, treatment and diagnosis of diseases caused by bioterrorism agents as well as agents of emerging and infectious diseases, with particular emphasis on the most dangerous biodefense agents. The research projects of the Middle Atlantic RCE are examining the biology and the immunology of, as well as attempting to develop therapeutics and vaccines for, anthrax, hemorrhagic fever and other emerging viruses. In addition to USU, the Middle Atlantic RCE includes: Drexel University; Georgetown University; George Washington University; Johns Hopkins University; the University of Maryland Biotechnology Institute; the University of Maryland School of Medicine (*the lead institution*); the University of Missouri, Kansas City; the University of Pennsylvania; the University of Pittsburgh; the University of Vermont; the University of Virginia; the Virginia Bioinformatics Institute; Virginia Commonwealth University; the Virginia Polytechnic Institute and State University; and, West Virginia University.

USU Chair Establishes the USU Center for Medical Genomics and Proteomics. **Harvey B. Pollard, M.D., Ph.D., Professor and Chair, USU SOM Department of Anatomy, Physiology and Genetics (APG),** is the principal investigator for a National Institutes of Health (NIH)-sponsored study on the proteomics of cystic fibrosis. The award totals \$12.7 million over a seven-year period. Under the leadership of Doctor Pollard, *the USU SOM APG Center for Medical Genomics and Proteomics has become one of ten academic organizations in the United States to win substantial support from the NIH for the establishment of a Proteomics Center.* This contract has allowed the University to acquire a world-class set of mass spectrometers, as well as support personnel, to form the critically required technical basis for proteomic research in the 21st Century. *In terms of NIH funding, this moves the USU SOM Department into the ranks of the top twenty equivalent Departments in United States Medical Schools.* The Center is used as a resource for supporting critical research by the entire University. The focus of the Center is to identify proteins whose expression and function are significantly increased or decreased in cystic fibrosis. The rationale is that the identification of such proteins will provide essential information for the development of new clinical diagnostics and the discovery of new drugs with which to treat cystic fibrosis. Cystic fibrosis is the most common autosomal recessive lethal genetic disease affecting

the population of the United States, with one out of every 1,600 live births afflicted. A cystic fibrosis patient carries two copies of a mutant cystic fibrosis transmembrane conductance regulator (CFTR) gene, and approximately five percent of the population carries at least one mutant CFTR gene. The average cystic fibrosis patient dies at the age of 28, primarily through lung inflammation, infection, and failure. Information derived from this research promises to impact on the understanding of challenging, but less understood, inflammatory diseases of the lungs such as asthma, as well as inflammatory processes in other parts of the body. Faculty co-investigators and consultants at USU include **Gregory P. Mueller, Ph.D., Professor, APG; David Jacobowitz, Ph.D., Adjunct Professor, APG; Meera Srivastava, Ph.D., Associate Professor, APG; Ofer Eidelman, Ph.D., Research Assistant Professor, APG;** and, **Eleanor S. Metcalf, Ph.D., Professor, Microbiology and Immunology**. The Center for Medical Genomics and Proteomics is located in the USU Biological Instrumentation Center (BIC).

Department Chair Receives Lifetime Distinction Award. **Robert E. Goldstein, M.D., Professor and Chair, USU SOM Department of Medicine**, received the prestigious John F. Maher Memorial Laureate Award in November of 2003. The District of Columbia Chapter of the American College of Physicians (ACP) presents this award to those physicians who have shown by their lives and conduct an abiding commitment to excellence in medical care and service to the ACP. In presenting the award, Doctor Eugene Libre, Governor, ACP, DC Chapter, noted that Doctor Goldstein *...has set standards for professional skill and ethical conduct, (and) serves as a role model for other generations of physicians. ... (In) his many years of accomplishments he serves as a beacon to guide our profession.* Additionally, Doctor Goldstein was awarded the Department of Navy Meritorious Civilian Service Medal for his *...effective leadership, unparalleled initiative and inspiring devotion to duty...* (and) *in recognition and appreciation of his Meritorious Service, which has been of high value and benefit to the Navy.* Currently, Doctor Goldstein is a reviewer for the Annals for Internal Medicine, Circulation, the American Journal of Cardiology, the Journal of the American College of Cardiology, Cardiovascular Research, and the Journal of the American Medical Association. In addition, he serves on the Editorial Boards of the American Journal of Cardiology and the Journal of the American College of Cardiology. Doctor Goldstein became a Fellow of the American College of Physicians in 1973 and was elevated to Mastership in 2002. He is an ardent advocate of College activities and issues. As Chair of the USU SOM Department of Medicine, he recruits and sponsors medical students for ACP membership and active involvement. He strongly endorses advancement to Fellowship at faculty gatherings; and, the evaluation of progress towards Fellowship is a regular feature of the annual faculty review process in his Department.

Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry, Director, USU Center for the Study of Traumatic Stress, internationally recognized expert on post traumatic stress disorder (PTSD) and the mass psychological response to terrorism, continued to bring recognition to the SOM during 2003. During the past year, a Nation-wide mailing of CD-ROMs entitled, *Disaster Psychiatry: Individual and Community Interventions and Psychological Consequences of the September 11 Terrorist Attack*, was completed by the USU SOM Center for the Study of Traumatic

Stress. Numerous letters of appreciation from across the Nation have resulted from that mailing, to include the following: the Governor of Guam; the Executive Office of the Mayor, City of Providence, Rhode Island; and, the Secretary of the Department of Labor of the United States. A similar theme of appreciation resulting from the mailing was the recognition of the Center's efforts in educating individuals in the importance of the psychological and behavioral responses to bioterrorism events and the Center's significant assistance in preparing for and mitigating the possible psychological threats related to global terrorism. Also significant during 2002 and 2003, Doctor Ursano served on the Institute of Medicine Committee on Responding to the Psychological Consequences of Terrorism. ***His leadership was instrumental in developing and advancing a national strategy that integrates mental health into a public health paradigm for terrorism management and response.*** This new model is of substantial consequence as it demonstrates how disaster psychiatry, a singular specialty significantly contributed to by the forging of military medicine and USU faculty health care leaders in the 1980's, has become a recognized, valued, and integral component for strengthening homeland security in this Century. The Committee's recommendations have been published in Preparing for the Psychological Consequences of Terrorism - A Public Health Strategy, the National Academies Press, Washington, D.C., 2003. In the December 2003 edition of THE LANCET, Volume 362, he also published *Prisoners of War: Long-Term Health Outcomes*. Doctor Ursano has continued his on-going collaborative efforts with the World Health Organization, which resulted in the January 2004 publication of *Mental Health of Populations Exposed to Biological and Chemical Weapons*. Recently, Doctor Ursano participated in the 2004 Sam Nunn Bank of America Policy Forum on *Bioterrorism Preparedness*, for which he was personally recognized by former Senator Nunn.

USU SOM Alumnus Selected as Department Chair. Colonel Andrew J. Satin, USAF, MC, USU SOM Class of 1986, was appointed to serve as the Chair of the USU SOM Department of Obstetrics and Gynecology in September of 2003, following a national search. Prior to his selection, Colonel Satin, served as Professor and Vice Chair in the Department and as the Program Director of the Uniformed Services Residency in Obstetrics and Gynecology. He is currently a member of the Editorial Board of Obstetrics and Gynecology, the premier journal of his specialty, and an Examiner for the American Board of Obstetrics and Gynecology. Colonel Satin is certified by the American Board of Obstetrics and Gynecology and by its subspecialty Division of Maternal-Fetal Medicine. (*Satin succeeds Douglas R. Knab, M.D., and William H.J. Haffner, M.D., USPHS (Retired), as the third Chair of the Department of Obstetrics and Gynecology. Doctor Knab, the first Chair, simultaneously served as the Associate Dean for Graduate Medical Education and retired in 1992. Doctor Haffner, following a national search, was appointed as the second Chair of the Department. After stepping down as the Department Chair, Doctor Haffner retains his position as a Professor within the Department and continues to lead and further advance the faculty development program for the Department, as well as his teaching and clinical care activities.*) As the Residency Program Director, Colonel Satin led the program from provisional accreditation status to full accreditation for the maximum term of five years. He is a nationally recognized expert in labor stimulation and labor management and has authored over 100 peer-reviewed manuscripts, abstracts, and book chapters. In addition, Doctor Satin has been appointed by the American College of Obstetricians and Gynecologists to the Committee on Practice Bulletins-Obstetrics.

SOM Associate Dean Re-Elected to the American Medical Association Council on Medical Education. Emmanuel G. Cassimatis, M.D., Professor of Psychiatry and Associate Dean for Clinical Affairs, was re-elected to the American Medical Association (AMA) Council on Medical Education; Doctor Cassimatis is presently serving as the Council's Chair and as the Chair of the Liaison Committee on Specialty Boards. Doctor Cassimatis was also elected to serve as Chair-elect of the Accreditation Council for Graduate Medical Education (ACGME). And, he continues to serve on the Board of Managers of the Association of Military Surgeons of the United States (AMSUS), as the AMSUS Delegate to the AMA House of Delegates. He also holds the position of the Immediate Past Chair of the AMA's Specialty and Service Society (the caucus of all of the Specialties and Services represented in the AMA House of Delegates). During 2003, Doctor Cassimatis additionally: co-chaired the annual meeting of the American Academy of Psychoanalysis and Dynamic Psychiatry; was selected as *Teacher of the Year* by the PGY-3 Psychiatry Residents of the National Capital Consortium; and, was awarded the *American Psychiatric Association's Nancy C.A. Roeske Certificate of Recognition for Excellence in Medical Student Education*.

Department Chair Appointed to OSD Advisory Council. James G. Smirniotopoulos, M.D., Professor and Chair of the USU SOM Department of Radiology and Radiological Sciences, and Professor of Neurology and Biomedical Informatics, was appointed during 2003 to serve as the Defense Department's Health Affairs Representative to the newly formed National Advisory Council for Biomedical Imaging and Bioengineering. The Council, under the oversight of the Secretary, Department of Health and Human Services (HHS), was mandated by Congress in the Public Health Service Act to advise the Secretary (HHS), Assistant Secretary for Health (HHS), the Director, National Institutes of Health (NIH), and the Director, National Institute of Biomedical Imaging and Bioengineering (NIBIB), on matters relating to the conduct and support of research, training, health information dissemination and on other programs that address biomedical imaging, biomedical engineering, and associated technologies and modalities with biomedical applications. Eight ex-officio members, plus 12 individuals appointed by the Secretary, HHS, make up the Council. In addition to the Secretary, the remaining seven ex-officio members include: the Directors of NIH and NIBIB; the Chief Medical Director of the Department of Veterans Affairs; the Directors of the Centers for Disease Control and Prevention, the National Science Foundation, and the National Institute of Standards and Technology; and, the Assistant Secretary of Defense for Health Affairs (*or their designated representatives*). Doctor Smirniotopoulos serves as the designated representative for the Assistant Secretary of Defense for Health Affairs. Council members serve overlapping four-year terms. In addition, Doctor Smirniotopoulos received approval for providing on-line continuing medical education (CME) and continuing nursing education (CNE) through his MedPix Radiology Teaching File; the program provides one hour of Category 1 CME or 1.2 hours of CNE for every four MedPix cases. *USU now supports all of the DoD Diagnostic Radiology Residency Programs by administering and hosting commonly shared teaching files.* MedPix has over 7,000 registered users, although registration is not required for simple case review. During 2003, the MedPix database was upgraded to include a secure web server for log-in and user administration. *MedPix has delivered more than 11,206,663 pages since September 3, 2000, and it is the longest running Case of the Week program in the world.* Doctor Smirniotopoulos has also begun a *Teach the Teachers* project, sponsored by an educational grant from the Radiological Society of North America (RSNA) to train 6-8 African Radiologists in Tropical Imaging. This competitively chosen group will spend seven weeks at

USU in classroom, small group, and independent study. The radiologists will then return to their home countries to share their experiences at USU.

SOM Dean Selects Interdisciplinary Program Chair. On January 10, 2003, the SOM Dean announced the appointment of **Jeffrey M. Harmon, Ph.D., USU SOM Professor of Pharmacology**, as the Director of the Interdisciplinary Graduate Program in Molecular and Cell Biology. (*Doctor Harmon succeeded William C. Gause, Ph.D., USU SOM Professor of Microbiology and Immunology, who had served in this position since 1995 until his appointment as Vice Chair in the Department of Microbiology and Immunology.*) The faculty of the Interdisciplinary Graduate Program in Molecular and Cell Biology comes from 11 basic science and clinical departments. Their research programs reflect a wide range of interests, including the molecular virology of HIV pathogenesis, the function of the immune system, and the mechanisms by which cells sense, process, and respond to a variety of normal and abnormal stimuli. These research programs attract extensive funding from the National Institutes of Health, the National Science Foundation, and a host of other public and private agencies and provide molecular and cell biology graduate students, who come from all over the world, with the opportunity to receive training in virtually every cutting-edge area of modern biomedical research. Doctor Harmon received his Doctorate in Radiation Biology and Biophysics from the University of Rochester in 1976; and, he was a Damon Runyon-Walter Winchell Fellow in Cancer Research in the laboratory of biochemistry of the National Cancer Institute from 1976 to 1978. His own research is directed at elucidating the mechanisms by which steroid hormones regulate the expression of specific genes in cancer cells and understanding how cancer cells become drug-resistant.

Biochemistry Faculty Member Receives Two Research Grants. In April of 2003, the National Science Foundation (NSF) announced that **Teresa M. Dunn, Ph.D., USU SOM Professor of Biochemistry**, was the recipient of a prestigious and highly competitive NSF 2010 grant, with a goal to identify the function of all genes in the wild-mustard plant, *Arabidopsis thaliana*, by the year 2010. This information will be used to help develop new strategies in crop breeding and pest control. Doctor Dunn will be leading a team of internationally respected investigators that includes: Jan Jaworski, Ph.D., and Edgar Cahoon, Ph.D., at the Danforth Plant Research Center in St. Louis, Missouri; Daniel Lynch, Ph.D., at Williams College in Williamstown, Massachusetts; and, Johnathan Napier, Ph.D., at the Rothamsted Research Institute in the United Kingdom. The grant is a four-year award with a total budget of \$2.6 million. During July of 2003, Doctor Dunn was notified by the National Institute of Neurological Disorders and Stroke that she would receive a five-year, \$2.9 million grant to study the mammalian version of the enzyme *serine palmitoyltransferase* (SPT), whose composition and regulation she has previously characterized in yeast. This enzyme catalyzes the committed step of sphingolipid biosynthesis; and, its alteration has recently been discovered to be the cause of Hereditary Sensory Neuropathy Type 1 (HSN1), a rare, inherited disease that results in progressive loss of sensation in the lower extremities. This study will be performed in collaboration with **Jeffrey M. Harman, Ph.D., USU SOM Professor of Pharmacology**, and Robert Brown, Ph.D., of the Harvard Medical School.

Two USU SOM Departments Garner Significant NIH Support for Health Disparities Research. During 2003, CDR Evelyn Lewis, MC, USN, (Retired), Assistant Professor, USU SOM Department of Family Medicine, and Richard Tanenbaum, Ph.D., Visiting Scientist, USU SOM Department of Medical and Clinical Psychology, were awarded a \$7 million, multi-year grant, from the National Institutes of Health (NIH) National Center on Minority Health and Health Disparities, to sponsor the USU Center for Health Disparities, referred to as *Project EXPORT*. Doctor Evelyn Lewis is the Principal Investigator on the NIH grant; and, Doctor Richard Tanenbaum serves as the Co-Principal Investigator and Project Director. **David S. Krantz, Ph.D., Professor and Chair, USU SOM Department of Medical and Clinical Psychology,** serves as the Center Director. This groundbreaking project will establish an infrastructure to: optimize patient outcomes by enhancing providers' interpersonal and communication skills with diverse patients; educate practitioners about health disparities; and, highlight the importance of establishing collaborative patient-provider relationships. *Project EXPORT* will sponsor the development of workshops and other educational forums that focus on disseminating critical knowledge about health disparities and teaching practical skills in order to maximize culturally proficient health care service delivery. (Additional information on this new USU center is provided in the following section entitled, *RESEARCH CENTERS AND PROGRAMS*.)

USU Research, Recognized by Science as one of the Top Ten Scientific Breakthroughs of 2002, Continues Significant Collaborative Efforts. Two thousand United States troops were sent from a base in North Carolina to the Sinai Desert, fulfilling their rapid deployment force mission to deploy anywhere in the world in 18 hours. While the soldiers were ready fighting forces when they left North Carolina, because of the effects of jet lag, their performance would have been degraded if they had to engage in combat immediately upon arrival in the Desert. A discovery by scientists in the USU SOM Department of Anatomy, Physiology and Genetics (APG) could eventually result in a treatment for jet lag and help to optimize performance by deployed service members. Researchers have been studying the eye for several hundred years. Santiago Ramon y Cajal, a Spanish neuroanatomist, who is frequently referred to as *the father of neuroanatomy*, was the first to anatomically characterize the cells of the retina. Cajal's work showed that the rods and cones were the only two types of photoreceptors in the retina, initiating sight by activating nerve cells that send signals to the brain. The rods are the cells responsible for vision at low light levels, while the cones are active at higher light levels. His work done around the turn of the 20th Century, showing that rods and cones were the only photoreceptors in the eye, was long considered the standard until 2002. USU faculty member, **Ignacio Provencio, Ph.D., Assistant Professor, USU SOM Department of APG,** and **Doctor Mark D. Rollag, Ph.D., Professor and Vice Chair, USU SOM Department of APG,** identified a new photosensory system in the mammalian eye responsible for resetting the internal 24-hour (circadian) clock. This discovery was recognized by the prestigious journal, Science, as one of the *Top Ten Scientific Breakthroughs of 2002*. This past year, these USU investigators, in collaboration with colleagues in The Scripps Research Institute, the Genomics Institute of the Novartis Research Foundation, and Washington University, showed that the melanopsin-containing cells of the photoreceptive net work, in conjunction with the well-known rod and cone visual photoreceptors of the retina, reset the clock. Understanding how our internal daily clocks are reset will provide the basis for future pharmacologic or phototherapeutic strategies to ameliorate internal timing

disturbances such as jet lag. In an age when the men and women of our Armed Forces are immediately deployed into theaters of operation many time zones away, developing such strategies will prove critical to medical readiness.

USU Researchers Target Malaria at Home and Abroad. Within the last year, an estimated two to three million deaths world-wide were caused by malaria. Combating this global threat is important to the military since fighting forces are often deployed into areas where malaria is endemic. Researchers at USU, led by **Donald R. Roberts, Ph.D., Professor of Tropical Public Health, USU SOM Department of Preventive Medicine and Biometrics**, are helping nations predict high-risk locations for malaria occurrence through satellite imaging and the use of geographic information system (GIS) technology. This technology is used to predict malaria mosquito population levels and disease transmission risks within precise areas and time frames. The National Aeronautics and Space Administration (NASA) is the primary sponsor of this research. Remote sensing and GIS technologies have the potential for targeting and managing malaria vector control in Belize, a Central American country that experienced a resurgence of malaria in the mid-1990's. Through stratification, the country has reduced malaria rates since 1995. To make efforts more cost-effective, officials can increase the use of remote sensing and GIS technologies to more precisely target the application of control measures; past research in Belize has shown that these technologies can be used to identify favorable mosquito habitats through characterization of vegetation, bodies of water, and other environmental factors. This information, along with specific locations of human habitations, can help Belize's Ministry of Health pinpoint high risk areas to reduce malaria control operational costs and the amounts of chemicals needed for effective levels of control. Once a functional GIS is developed for the whole country, it can also be used in other public health programs such as immunizations and dengue control. In September of 2002, two confirmed cases of malaria were discovered in Northern Virginia. In response, Doctor Roberts and his team, under existing memoranda of understanding, helped local and state health authorities trap and test mosquitoes that might be harboring malaria. They collected and verified the presence of malaria-positive pools of mosquitoes from Selden Island; the island is part of Montgomery County, Maryland, but is located on the Virginia side of the Potomac River. The USU team, led by Doctor Roberts, continues to provide technical and consultative expertise to authorities on this issue; and, Doctor Roberts continued to garner national press coverage for his work during 2003.

(Appendix C provides selected examples of billeted and off-campus members of USU Departments and Programs and Department Activities receiving special recognition during 2003.)

RESEARCH CENTERS AND PROGRAMS.

We will coordinate with other agencies to develop and conduct specialized training for health care professionals in:

- **Disaster and Humanitarian Relief**
- **Weapons of Mass Destruction**
- **Traumatic and Post-Traumatic Stress**
- **Preventive Medicine for Mission Readiness**
- **Force Health Protection and Healthy Lifestyles**

- **USU Strategic Plan, Goal 1, *Education*, 2003-2004.**

We will emphasize research and development relevant to military, Federal, and homeland security needs.

- **USU Strategic Plan, Goal 3, *Research*, 2003-2004.**

Research is Directed Toward Military Requirements. As discussed in the *Strategic Planning* and *Research Administration* sections of Part I of this annual report, the majority of the research programs and projects currently taking place at USU are focused on meeting the needs of the Uniformed Services. Research protocols throughout the SOM study diseases of high military relevance for troop deployment and sustainment. During 2003, the USU intramural program consisted of 69 militarily relevant protocols; extramurally funded research at USU, in 2003, included 198 projects supported by Federal agencies such as the National Institutes of Health (NIH), the National Science Foundation (NSF), the Department of Energy (DOE), the United States Army Medical Research and Materiel Command (USAMRMC), and the Office of Naval Research (ONR). These 267 protocols explored a wide span of scientific areas, including basic biomedical questions central to the mission of the Military Health System such as: 1) the mechanisms, transmission and control of a wide range of infectious and/or common diseases that may be faced by warfighters; 2) a variety of crucial topics in combat casualty care, operational medicine, and health education and promotion; 3) women's health issues in the DoD; and, 4) the development of new methods for the diagnosis and treatment of medical problems faced by the United States military and their dependents. Research contributed by SOM faculty relating to combat casualty care continues to provide rapid diagnostic methods and treatments that ensure military readiness.

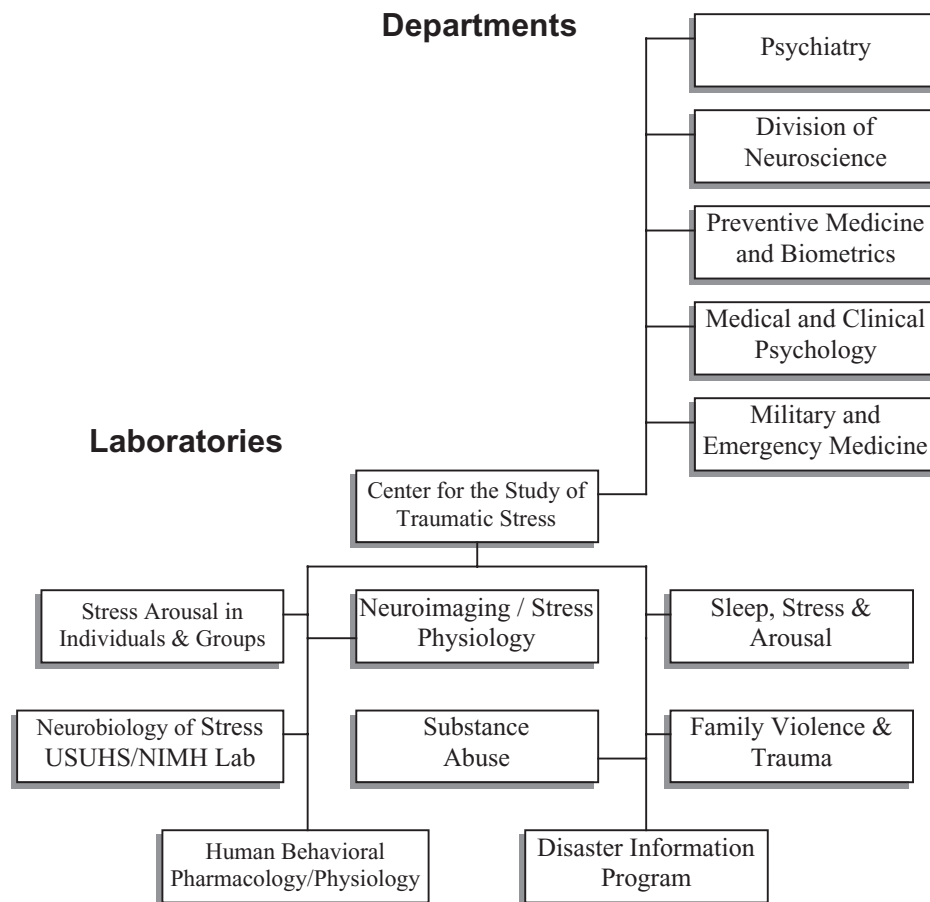
The understanding gleaned by USU researchers will open avenues to better control, diagnose, and treat natural and man-made biological threats both at home and abroad. *For example, on-going technological advances by USU researchers in the SOM Department of Preventive Medicine and Biometrics (PMB) have made it possible to predict mosquito population levels and transmission risks for a range of mosquito-borne diseases such as malaria, even within precise areas and time frames.* By using satellite imaging and remote sensing devices, USU researchers assist in predicting high-risk locations for the occurrence of malaria and similar diseases. These predictions focus disease-control operations and conserve scarce finances as well as human resources. A recent discovery by scientists in

the USU SOM Department of Anatomy, Physiology and Genetics (APG) could result in a treatment for jet lag and help to optimize performance by deployed members of the Uniformed Services. *Recognized by Science as one of the top ten scientific breakthroughs of 2002, two APG researchers identified a photoreceptive net, a new light-detecting apparatus in the retina*; their collaborative research continued throughout 2003.

The following SOM Centers, Activities, and individual researchers are provided as selected examples of the research and consultative services taking place throughout the School of Medicine. (See Appendix C for Additional Examples of Individual Achievements and Recognition.)

SELECTED PROFILES OF SOM CENTERS AND PROGRAMS

USU School of Medicine Department of Psychiatry and the Center for the Study of Traumatic Stress.



Establishment. The USU Center for the Study of Traumatic Stress (CSTS) was established in 1987, as a center of excellence for responding to DoD's long-term concerns over the substantial health risks resulting from the traumatic impact of: 1) the possibility, or actual use, of weapons of mass destruction (WMD) during combat, acts of terrorism or hostage events; 2) combat, peacemaking, peacekeeping, and operations other than war; 3) natural disasters such as hurricanes, tornadoes, or floods; and, 4) more common stress producing events such as physical assaults and motor vehicle, shipboard, or airplane accidents in both the uniformed and civilian communities. As the Academic Health Sciences

Center for the Uniformed Services, the University is well situated to assist in meeting the needs of the Military Health System (MHS) and of the Nation in the area of *traumatic stress*.

At present, investigators from the four USU SOM Departments of Psychiatry, Preventive Medicine and Biometrics, Military and Emergency Medicine, and Medical and Clinical Psychology, and the SOM Division of Neuroscience are collaborating on extensive studies on traumatic stress. The CSTS scientists are involved in a wide range of projects including responses to natural, man-made, and environmental disasters; the studies examine community responses to loss of life and property, community displacement, and organizational leadership. In addition, the CSTS research projects involve the examination of the physiological changes after trauma and the neurobiology of stress. Since its establishment, the CSTS has provided education and consultation to: the Armed Forces; the Department of Veterans Affairs; the Department of State; the Central Intelligence Agency; the National Aeronautics and Space Administration; the Institute of Medicine; the National Transportation Safety Board; the National Institute of Mental Health; the American Medical Association; the American Psychiatric Association; the American Psychological Association; the American Red Cross; the World Health Organization; the Disaster Stress Center of the University of Oslo, Norway; the Traumatic Stress Center of the Hadassah Medical Center in Jerusalem, Israel; and, the Italian Ministry of Health.

The last quarter of 2001 validated the *raison d'être* of the CSTS, when ***military unique expertise in disaster mental health and trauma research in terrorism and bioterrorism were recognized as being essential to national security***. Federal and State leaders, as well as the public health and mental health care systems, teaching institutions, and media outlets were seeking to understand the traumatic impact of 9/11, the anthrax attacks, and the traumatic anxiety generated by those events. CSTS quickly assumed a leadership position in responding to these contingencies and in advising Federal and State leaders on recovery and resiliency; CSTS sustained its critical support throughout 2002 and 2003 in the form of education, training conferences, research and published work addressing population-based trauma. ***By the end of 2003, CSTS leadership had been instrumental in developing and advancing a national strategy that integrates mental health into a public health paradigm for terrorism management and response***. This new model is of substantial consequence as it demonstrates how ***disaster psychiatry, a singular specialty significantly contributed to by the forging of military medicine and USU faculty health care leaders in the 1980's***, has become a recognized, valued and integral component for strengthening homeland security in the 21st Century.

The chaos that occurs when lives are thrown into the turmoil of terrorism and disaster has a structure that becomes increasingly evident through research, clinical work, and related community concerns. Further understanding of the consequences of terrorism and disaster will aid leaders and health care providers in planning for such events.

- **Robert J. Ursano, M.D., Professor and Chair, Department of Psychiatry, Director, Center for the Study of Traumatic Stress, USUHS, Terrorism and Disaster: Individual and Community Responses to Extraordinary Events, Cambridge University Press, 2003.**

Mission. Today, CSTS is well positioned within the MHS and continues to increase the military's medical knowledge (in the areas of epidemiology, psychology, neurobiology, health care systems and treatment) of the consequences of bioterrorism, trauma, and disaster *and to apply that knowledge* in addressing the real world problems, issues, and requirements of homeland defense, the response to terrorism and disaster, and humanitarian assistance. **Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry, serves as the Director of the CSTS.**

Preservation of Lessons Learned. The health implications of traumatic stress are a focused interest immediately following each trauma or disaster, but the data tends to be lost from institutional memory because of the lack of an organized center for the maintenance and development of the resulting information. The USU CSTS has served the Military Health System by capturing, organizing, and maintaining relevant information following disasters, terrorist events, and wars. Currently, the Center's basic computer data base (accessible to the Uniformed Services) provides over 17,000 articles of relevance to traumatic stress. It is this data base that enabled the CSTS to effectively respond, throughout 2002 and 2003, to the traumatic stress resulting from the terrorist acts of war against our Nation. The CSTS conducts research on the neurobiology of traumatic stress and is studying the psychological and behavioral responses to such events as the attack on the *USS Cole* in October of 2000, the attacks on the Twin Towers and the Pentagon in September of 2001, the October 2002 Sniper attacks in the Washington, D.C. area, and the on-going war in Iraq. Additional information is available at <<http://www.usuhs.mil/psy/disasterresources.html>> or <<http://www.usuhs.mil/psy/traumaticstress/newcenter.html>>.

Core Military Competency. The location of the CSTS within the multi-Service environment of USU, with its emphasis on education and development, studies, research, and on-going clinical and operational practice is critical to the development and sustainment of CSTS's ability to provide its ***CORE COMPETENCY - the capability to ensure the continued provision of critically required military-unique, medical expertise and consultative support in response to the impact of traumatic stress during and following activities related to crisis management, disaster response, and homeland defense.*** The successful assessment and management of the behavioral, psychological, and social consequences of WMD-related and other national security contingencies is essential to DoD during the organization of effective responses to such events. Failure to attend to the consequences of WMD may lead to heightened stress or demoralization and could undermine the confidence of the Armed Forces and American citizens in their government and its institutions. Only DoD has a self-renewing source of physicians and other medical personnel with interest and experience in these areas. USU, through its students in the School of Medicine, the Graduate School of Nursing and Graduate Education Programs, and its career-focused faculty and staff, plays a vital role for the DoD in the renewal process of militarily-focused and experienced health care providers in the study of traumatic stress. The Center's unique military medical capability to assess and manage the traumatic impact of WMD and other disaster-related contingencies provides direct support to Homeland Security and Defense.

Areas of Study. Twelve major projects are currently funded with well over six million dollars from the following sources: the Department of the Army; the National Institute of Mental Health; the National Alliance for Research on Schizophrenia and Depression; the National Alliance for the Mentally Ill Research Institute; the National Institute on Drug Abuse; the Substance Abuse and Mental Health

Services Administration of the Department of Health and Human Services; the Stanley Foundation; and, the United States Marine Corps. *Ongoing studies include the following areas:* psychological and behavioral responses to weapons of mass destruction; combat stress; the prevention of stress-related disease; shipboard fires and emergencies; relocation stress; prisoners of war; leadership of those suffering from grief; medical personnel in disasters; traumatic stress and the immune function; community responses to disaster; identification of high risk populations; chronic stress; medical treatment following trauma; biomedical responses to stress; family violence; and, others. *Recently funded studies include:* combat stress in Bosnian-deployed troops; stress among emergency workers after an air disaster; psychological stress in the United States military deployed to Desert Storm/Shield; family violence and trauma; stress and women's health; combat, deployment, contingency operations, and trauma; basic neurobiology of genetic and second messenger stress responses; stress and arousal symptoms in individuals and groups using the Persian Gulf War symptoms as a paradigm; disaster psychiatry education; natural disasters and health outcome: adult and adolescent responses to Hurricane Andrew; genetic risk for substance abuse and cognitive processing; animal models for the study of the neurobiology of trauma responses and depression; and, the development of a strategic plan for the management of mass violence in the workplace.

Focus of the Nine CSTS Laboratories. The CSTS has nine research laboratories that concentrate on the following areas of study: 1) stress and arousal in individuals and groups; 2) neuroimaging/stress physiology; 3) sleep, stress and arousal; 4) social function in high stress environments; 5) neurobiology of stress; 6) family violence and trauma; 7) human behavioral pharmacology/physiology; 8) substance abuse; and, 9) disaster information.

Activities During 2003. The unifying themes of military service, leadership and education characterize CSTS' growth and impact in addressing three of the University's strategic goals. First, CSTS provided direct support to the MHS for the management of the traumatic consequences and mental health care requirements of deployed troops and their dependents during the on-going war on terrorism. Second, CSTS leadership was instrumental in developing and advancing a national strategy that integrates mental health into a public health paradigm for managing the psychological impact of disaster, terrorism, and bioterrorism, both for the MHS and the Nation. And, third, the CSTS expanded its role in public education initiatives and public/private partnerships to reflect USU's mission to educate, train, consult and establish new forums for addressing the traumatic consequences of disaster, terrorism and bioterrorism.

CSTS Leadership. **Doctor Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry, and Director of the CSTS,** served on the Institute of Medicine Committee on Responding to the Psychological Consequences of Terrorism. His military unique expertise was instrumental in developing and advancing a national strategy that integrates mental health into a public health paradigm for terrorism management and response. This new model is of substantial consequence as it demonstrates how disaster psychiatry, a singular specialty significantly contributed to by the forging of military medicine and USU faculty health care leaders in the 1980's, has become recognized, valued and regarded as an integral component for strengthening homeland security in this Century. The

Committee's recommendations have been published in Preparing for the Psychological Consequences of Terrorism: A Public Health Strategy, the National Academies Press, Washington, D.C., 2003.

The CSTS expanded and applied the new model described above and benefited the readiness mission of the MHS through the establishment of the *Nation's first Disaster and Preventive Psychiatry Fellowship*, which was awarded to **Lieutenant Colonel (P) Elspeth Cameron Ritchie, MC, USA**, an Army psychiatrist. Under the mentorship of the USU CSTS faculty, Lieutenant Colonel Ritchie established an international presence for USU by working in Israel, Egypt, and Baghdad, Iraq, with psychiatrists from the State Department, to improve mental health assessment and interventions following terrorism intrinsic to the war in Iraq. Doctor Ritchie coordinated a planning meeting, which was held at USU, with representatives from the State Department; the National Institute of Mental Health, the Substance Abuse and Mental Health Services Administration; the World Bank; and, Non-Governmental Relief Organizations on the DoD mission and objectives for assisting in rebuilding a mental health system in Iraq.

Recognition of the national stature of the CSTS also occurred when **Colonel Ann E. Norwood, MC, USA, USU SOM Class of 1981, Associate Professor and Associate Chair, USU SOM Department of Psychiatry**, who served at USU and the CSTS until May of 2003, was selected for the position of *Senior Advisor for Public Health Risk Communication* in the Office of the Assistant Secretary for Public Health Emergency Preparedness at the Department of Health and Human Services (HHS). Colonel Norwood continues to serve as the Director of the Disaster and Preventive Psychiatry Fellowship, described above, and to work closely with the CSTS on multiple projects.

Collaboration Throughout the Military Health System. Throughout 2003, the CSTS provided expert consultation to health care and mental health professionals who were deployed in support of the Operations Iraqi Freedom and Enduring Freedom. CSTS support included preparation and planning with the Walter Reed Army Medical Center, the National Naval Medical Center, and the *USN Comfort*. Based upon lessons learned from the 1990-91 war with Iraq as portrayed in CSTS' seminal document, Emotional Aftermath of the Persian Gulf War: Veterans, Families, Communities, and Nations (edited by Doctors Ursano and Ann Norwood, MC, USA, USU SOM Class of 1981, and published by CSTS following the 1991 conflict), consultation and liaison services were provided to the MHS medical centers for mitigating and treating the psychiatric requirements of returning casualties. In addition, CSTS faculty and practitioners consulted on pre-deployment and post-deployment troop assessments and provided on-going *reach-back* consultation to address the special requirements of prisoners of war, psychiatric casualties, and preparation for the psychological consequences of WMD. The CSTS maintained close contact with the *USN Comfort*, throughout the past year, and completed a study that assesses the impact of deployment on medical personnel and examines interventions for possible support to medical care teams.

Doctor Robert Gifford, CSTS, conducted a review of mental health operations during Operation Iraqi Freedom. Protocols for collaboration between USU and the National Committee for Employer Support of the Guard and Reserve are being developed to study the stresses on the members of the Reserve Components called to active duty. **Colonel Charles C. Engel, Jr., MC, USA, Associate Professor, USU SOM Department of Psychiatry, Director, Deployment Health Clinical Center**, is studying how to improve behavioral and rehabilitative elements of primary care in the MHS, particularly in the

occupational health care setting. Doctor Engel has multiple projects focusing on: medically unexplained physical symptoms in the veteran population; primary care aspects of environmental risk communication; and, evidence-based clinical practice guideline development and implementation. The National Institutes of Health, the Centers for Disease Control, the Department of Defense, and the Department of Veterans Affairs fund his research. His work has been widely published in peer-reviewed medical journals, such as the Journal of the American Medical Association, the American Journal of Psychiatry, and Controlled Clinical Trials. Doctor Engel was awarded the William C. Porter Award by the Association of Military Surgeons of the United States (AMSUS) for outstanding contributions to military psychiatry.

The Center's ***Family Violence and Trauma Project (FVTP)*** entered its eighth year in October of 2003. The Center's FVTP provides support to command including the Army Community and Family Support Center Headquarters and Staff; the Headquarters, Department of the Army Family Advocacy Committee; the Family Advocacy Research SubCommittee; Family Advocacy Program Managers; Chiefs of Social Work Services; and, Army Social Workers. The FVTP has provided immediate responses, briefings, papers, and staff studies to the Headquarters Department of the Army Family Advocacy Program Managers and the Family Advocacy Research SubCommittee reference issues involving the scientific and medical aspects of child and spouse abuse. During 2002, the FVTP completed the only two empirical studies of *Family Violence and Deployment* using an Army database for one study and a study of troops from Fort Hood (to include their spouses) who were deployed to Bosnia in the other. Also, an analysis was initiated on the Army's Transitional Compensation data base, which lists cases of soldiers who have been discharged from the Army where spouse or child abuse has been a part of the discharge. Joining Forces, a quarterly newsletter of the FVTP, brings important research to the field and enjoys strong popularity within the Army and the DoD. During 2003, the FVTP continued to add to its scientific literature data base of family violence articles. This data base is used for scientific reference to improve the development of family violence research protocols and to further the research education of Army military and civilian research social workers. Many of these articles have been sent to investigators and program managers in the Army's Family Advocacy Program (FAP) and FAP-related programs such as the military police school for teaching police to respond to incidents of family violence.

National Educational Activities. The Institute of Medicine (IOM) published a groundbreaking report, during 2003, linking public health and mental health as critical to national psychological and behavioral preparation and response plans for facing terrorism. As mentioned above, Doctor Ursano was an invited member of the Committee that authored The Institute of Medicine Report on Preparing for the Psychological Consequences of Terrorism: A Public Health Strategy (The National Academies Press, Washington, D.C., <www.nap.edu>, 2003). The report provides a public health strategy from which plans to prevent and respond to the psychological consequences of a variety of terrorist events can be formulated. The report includes recommendations for the training and education of service providers, ensuring appropriate guidelines for the protection of service providers, and developing public health surveillance for pre-event, event, and post-event factors leading to psychological consequences.

The CSTS, in collaboration with the Centers for Disease Control (CDC), the National Institute of Mental Health (NIMH), and the National Child Trauma Network, is developing measures to assess a new area of terrorism and bioterrorism interest, *resilient communities*. This work addresses the integration of mental health and public health through new practices such as mental health surveillance to assess community adaptation before, during, and after a disaster or terrorist event. This information will enable

the effective use of resources to enhance resilience and preparedness and direct response plans. As part of its on-going work to enhance the Nation's readiness, the CSTS, in collaboration with the Substance Abuse Mental Health Services Administration (SAMHSA), produced a two CD-ROM volume on *Bioterrorism for Government Leaders and Policy Makers*. The CD-ROMs were distributed to all members of the United States Congress, State Governors, Supreme Court Justices, State Health Departments and Chief Executive Officers (CEOs) of Fortune 500 Companies. Numerous letters of praise and appreciation have been received from the recipients.

Doctor Ursano was an invited participant at the **2003 Conference Board in New York City, a meeting of the Nation's Fortune 100 CEOs**, established in 1920. This year, the Conference Board focused on the *Effects of Terrorism in the Workplace*. The CSTS received a grant from the National Institute for Occupational Safety and Health (NIOSH) and developed a strategic plan for the management of mass violence in the workplace. **Doctor Carol Fullerton, SOM Associate Professor (Research), and Doctor Robert Gifford, CSTS Research Psychologist (former Director of the Walter Reed Army Institute of Research (WRAIR),** spearheaded the NIOSH initiative.

A live video-teleconference was conducted by the CSTS with faculty and clinical staff from the Rush Medical Center in Chicago, Illinois. This *scenario-based model for distance learning* was established to train emergency room health care professionals to mitigate and treat terrorism-related trauma. The half-day broadcast provided education on the psychological and behavioral impacts of bioterrorism and developed recommendations for the Rush Medical Center's Emergency Response Plan.

The Center continued to provide consultation and expertise to local and state governments. **Colonel Molly J. Hall, USAF, MC, FS, Associate Professor, USU SOM Department of Psychiatry, and Director, Bioterrorism Education Project,** co-authored multiple articles on the psychological impact of bioterrorism and provided teaching and training to multiple State and Federal agencies, including the Central Intelligence Agency, the Maryland State Office of Public Health Preparedness, and the Arizona State Emergency Management Authority. She provided on-going consultation to the Maryland, Virginia, Washington, D.C. Council of Government Bioterrorism Task Force and The Animal Services Committee. Doctor Hall and members of the CSTS wrote the guidance on mental health support for the Veterinarian Medical Emergency Assistance Teams as part of the National Medical Defense System (*Psychological Impact of the Animal-Human Bond in Disaster Preparedness and Response: Guidance for Veterinary Medical Assistance Teams*, authored by M.J. Hall, R.J. Ursano, H. Holloway, C.S. Fullerton, A.E. Norwood, and J. Casper, Veterinarian Medical Assistance Team Field Manual, FEMA/National Medical Defense System, in press, 2004.) In addition, **Rear Admiral Brian W. Flynn, M.D., United States Public Health Service (Retired), Associate Director, CSTS,** an international expert on disaster mental health, worked with a number of State Departments of Health on integrating mental health interventions into the individual State preparedness plans for disaster and terrorism. In addition, Doctor Flynn worked with families and survivors of the Rhode Island nightclub tragedy to reach consensus on a disaster memorial.

In June of 2003, CSTS created an **Office of Public Education and Preparedness (OPEP)** under the direction of **Nancy T. Vineburgh, Assistant Professor, USU SOM Department of Psychiatry,** a recognized expert in corporate health promotion and public education on mental health issues. This new office is charged with identifying programs and partnerships that will advance CSTS and USU visibility,

expertise, and funding for preparedness programs, especially in the workplace. OPEP objectives include the expansion of CSTS' role in education, consultation, and training provided to the Nation's workplaces and schools and the DoD community. Activities of the OPEP include a Substance Abuse Mental Health Services Administration (SAMHSA) Knowledge Dissemination Grant submission to conduct a national workplace preparedness conference and presentations on public health strategies for managing the psychological consequences of terrorism at the American Public Health Association Conference to be held in November of 2004. A Task Force has been formed to guide the Conference and includes Fortune 100 Employers, such as Chevron/Texaco, Dupont, Citigroup, and other industries designated by the Department of Homeland Security as high risk in sports and entertainment; the CSTS will be participating with the CDC, other agencies within the Department of Health and Human Services, and the Institute of Medicine. And, the CSTS/OPEP and the Department of Homeland Security's Public Affairs Office have established on-going collaborative efforts on public education and risk communication. In October of 2003, the OPEP Director attended a Global Symposium on Workplace Mental Health at the United Nations International Labour Organization in Geneva, Switzerland, which promoted awareness of the CSTS' role in organizational education and consultation; she will also speak at an international conference for employee assistance professionals in Ottawa, Canada. ***The OPEP worked with the CSTS faculty to introduce a health promotion campaign for the DoD community to enhance healthy lifestyles for families.*** A *Holiday Homecoming Fact Sheet*, which received excellent feedback, has led to a USU-wide promotion campaign to be launched in 2004. This campaign, *Courage to Care*, will help to position USU as one of the leaders in uniformed health care education within the DoD community.

The CSTS Neuroscience Program grew during 2002-2003. Funding was received from DoD, during 2002, to begin laboratory renovations and to obtain stimulus presentation equipment for functional magnetic resonance imaging (fMRI). **Elizabeth Osuch, M.D. Assistant Professor, USU SOM Department of Psychiatry**, received an R01 Grant from the National Institute of Mental Health to study *Functional Neuroimaging in Acute Stress Disorder and PTSD*. Doctor Osuch's research focuses on the neurobiological and behavioral effects of exposure to extreme environmental stress, which includes functional brain imaging studies in traumatized populations, such as individuals who have been in motor vehicle collisions. Her research also includes a major, new national initiative to develop a postmortem brain tissue collection for the study of the pathology of exposure to extreme stress.

National and International Educational Initiatives. CSTS has made great strides in educational initiatives involving national and international agency collaboration on: training health care professionals in disaster and humanitarian relief; understanding the traumatic consequences of weapons of mass destruction; and, innovative public education programs reaching new audiences and enhancing force health protection and healthy lifestyles. The CSTS sponsors trauma and disaster-related fellowship programs, to include the Visiting Science Fellowship Program and the Military Psychiatry Fellowship Program. Graduates of these programs serve as catalysts for research, educational, and clinical programs throughout the World. Beginning in 1998, when the Center sponsored a visiting scientist from the Japanese National Defense Medical College, the *CSTS International Training Programs* have hosted a total of ten scientists from numerous nations, to include: Japan; Singapore; Greece; Korea; Germany; the Republic of Georgia; Italy; and, Israel.

Consistent with the DoD requirement to provide behavioral health expertise for mass casualty responses, population-oriented behavioral health programs, and behavioral health epidemiology, the

Department of Psychiatry and the CSTS, developed a new two-year *Disaster/Preventive Psychiatry Fellowship* sponsored by the National Capital Consortium and approved by the United States Army. The program matriculated its first Fellow in the Summer of 2003. In addition to applying through the established Graduate Medical Education route, candidates must also apply to the USU SOM Graduate Education Programs and be accepted by the USU Master of Public Health Program for their first year. The second year is spent with the Department of Psychiatry's CSTS and includes didactic experience, research, and rotations at other institutions.

Lieutenant Colonel (P) Elspeth Cameron Ritchie, MC, USA, the *first* CSTS Disaster Psychiatry Fellow, established an international presence working with State Department psychiatrists to improve plans for mental health interventions following the terrorist attacks in the United States. She presented in Israel on current efforts to respond to the mental health requirements due to the impact of terrorism and attended meetings in Egypt and Baghdad, Iraq, on assessing the mental health requirements and resources of Iraq. In July of 2003, the CSTS sponsored a meeting of national and international leaders at USU to identify the mental health care needs and requirements in Iraq.

Carol S. Fullerton, Ph.D., Associate Professor (Research), USU SOM Department of Psychiatry, CSTS Scientific Director, supervised the educational experiences of two CSTS International Disaster Psychiatry Fellows from Italy and the Japanese Defense University, as part of CSTS' International Training Programs.

Rafaella Querci, M.D., CSTS International Disaster Psychiatry Fellow, presented in Milan, Italy, on the *Psychological Impacts of Bioterrorism*, as part of an international agency coordination and training effort. Doctors Carol Fullerton, Robert Ursano, and Colonel Molly J. Hall successfully collaborated with the **Italian Embassy Scientific Attache, Professor Vittorio Daniore**, to develop and conduct the first meeting establishing a trans-Atlantic educational initiative between the United States and Europe to combat bioterrorism through disaster psychiatry. The conference, held at the Italian Embassy in Washington, D.C., on November 24, 2003, introduced the public health issues of bioterrorism to the European Community by employing a *space bridge* linked to Europe, which further achieved the distance learning objectives of USU. The conference program included presentations from **Professor Girolamo Sirchia, Minister of Health of the Republic of Italy**, and **Professor Antonio Cassone, Director, Department of Infectious Diseases, Istituto Superiore di Sanita** (the equivalent of the United States National Institute of Health), in Italy.

Jun Shigemura, M.D., CSTS International Disaster Psychiatry Fellow from the Japanese Defense University, was involved in research and humanitarian work with the United States Embassy of Japan and the Japanese Americans' Care Fund, a non-profit organization for Japanese Americans, to study relocation stress and mental health outcomes among Japanese residents in the Washington, D.C. area, as well as workplace trauma and disaster and terrorism preparedness and response in Japanese corporations.

Recently, the CSTS has also been requested to provide training, education, and consultation to Independent Counseling and Advisory Services (ICAS), which is based in the United Kingdom. ICAS provides international consultation to over 300 employee assistance programs and is the *World's* largest provider of critical incident response and management of trauma and violence in the workplace. Among

programs discussed were: education of first responders; education of leadership and managers; and, the development of preparedness plans for the workplace.

Community Activities. During 2002-2003, the CSTS forged an alliance with the Washington, D.C. Department of Mental Health by providing training on preparing and administering a smallpox vaccination plan and co-sponsoring a one-day conference on Terrorism at the George Washington University Medical Center. The conference was attended by over 150 health care providers and is being produced on a CD-ROM as an educational and training resource. The CSTS is also collaborating with the Washington, D.C. Department of Mental Health in a study to understand the impact of the Sniper attacks of 2002.

The CSTS Art and Public Health Education Project, under the leadership of **Doctor Carol Fullerton** and **Ms. Cathy Levinson**, produced a CD-ROM for distribution to area school systems and a curriculum targeted for elementary school students. And, the Adolescent Art and Public Education Campaign to Highlight Hope in a Time of Fear held a *Gallery Showing of Young Artist's Work*, at Glen Echo, Maryland. In recognition of the power of this outreach tool, Catholic University invited the CSTS faculty to present the work to their Graduate School of Social Work. CSTS joined **Everett Alvarez, Jr., J.D., Chair, USU Board of Regents**, and **Mrs. Tammy Alvarez**, collaborators with CSTS on a Photography Project on Human Resiliency, as they participated in the *Open Doors Gallery*, which showed Mrs. Alvarez' work on prisoners of war (POWs) from the Vietnam War.

The USU School of Medicine Department of Preventive Medicine and Biometrics, Graduate Education in Preventive Medicine and Public Health, and the Centers for Preventive Medicine and Public Health.

Graduate Education in Preventive Medicine and Public Health.

USU's Public Health Program, with its emphasis on community health, ranks sixth in the Nation according to U.S. News & World Report's 2004 rankings of America's Best Graduate Schools... USU's program ranked just below Tufts University, the Medical College of Wisconsin, Northwestern University, Oregon State University and the University of Rochester on the list of the top 10 community health master or doctorate programs.

- USU Medicine, U.S. News & World Report Ranks USU Graduate Programs in Top Six, Fall 2003, page 5.

The SOM Department of Preventive Medicine and Biometrics (PMB) offers programs of study leading to the graduate Degrees of Master of Public Health (MPH), Master of Tropical Medicine and Hygiene (MTM&H), Master of Science in Public Health (MSPH), Doctor of Public Health (DrPH), and Doctor of Philosophy (Ph.D) in Medical Zoology and Environmental Health Sciences. Between 1983 and April of 2004, PMB has graduated 487 individuals and granted 430 - MPH; 5 - MSPH; 26 - MTM&H; 1 - MS; 15 - DrPH; and, 10 Ph.D Degrees. During 2003, 44 Preventive Medicine and Biometrics students were awarded advanced degrees: 2 Doctors of Philosophy; 3 Doctors of Public Health; 38 Masters of Public Health; and, 1 Master of Science in Public Health. The PMB Graduate Programs have undergone considerable growth over the past several years and have approximately 59 students currently enrolled in the Master and Doctoral Programs. With its stated mission *to produce knowledgeable and highly skilled public health professionals in support of the health and global mission of the Uniformed Services*, the PMB Department has sought to be responsive to the needs of its customers; and, this is reflected in the types of programs and training offered. During 2003, PMB continued its collaborative educational agreements with the Walter Reed Army Medical Center Preventive Medicine Residency Program and Internal Medicine Fellowship Program, the Army Program for Training in Health Services Administration, the United States Army and the United States Public Health Service Laboratory Animal Medicine Program, the Navy Dental Research Institute Program in Dental Public Health, and the Indian Health Service Environmental Health Training Program. In addition, the PMB Department is affiliated with the United States Army and Navy Biomedical Research Laboratories located in: Bangkok, Thailand; Rio de Janeiro, Brazil; Nairobi, Kenya; Cairo, Egypt; Jakarta, Indonesia; and, Lima, Peru. The MTM&H Program includes a six-week overseas clinical experience in tropical medicine; the graduate students find excellent opportunities at these overseas laboratories. A research program also exists under an agreement with the Ministry of Health in Belize. Several doctoral students have found opportunities to do research in these various locations.

Demographics of the Graduate Program in Public Health. The class composition, as of April 2004, for the Graduate Programs in Public Health consists of 50 Master Degree-level students (MPH,

MTM&H, and MSPH); these programs are designed for students with at least three years of experience in a health-related field. Forty-eight of these students are in the Uniformed Services and two are civilians. *The 50 Master Degree-level students include:* 21 - Physicians; 2 - Veterinarians; 5 - Air Force International Health Specialists; 4 - Environmental Health Officers; 3 - Air Force Bioenvironmental Engineers; 6 - Health Physics Track; 2 - Air Force Public Health Officers; 2 - Indian Health Service Environmental Health Training Program; 2 - Aerospace Physiologists; 1 - Attorney (civilian); 1 - Pre-Veterinarian (civilian); and, 1 - Clinical Psychologist. First-year residents in General Preventive Medicine/Public Health and Occupational and Environmental Medicine take courses and meet all of the requirements for the MPH or MTM&H Degrees as part of their residency training.

The 9 doctoral-level students include: 4 individuals (1 uniformed officer; 3 civilians) who are Doctor of Public Health candidates; and, 5 individuals (4 uniformed officers; 1 civilian) who are Doctor of Philosophy candidates.

Accrediting Entities. The Graduate Education Programs offered by the PMB Department, as an integral part of the SOM and the SOM Office of Graduate Education, are included in the on-going accreditation granted by the **Commission on Higher Education of the Middle States Association of Colleges and Schools** to the University. In addition, the PMB graduate programs are nationally accredited by the **Council on Education for Public Health (CEPH)**. CEPH is the recognized accrediting body for graduate schools of public health and graduate programs in community health education and community health and preventive medicine. The PMB Graduate Programs in Public Health were initially accredited by CEPH in 1985 and were last reviewed in 1998. The CEPH report, following the June 1998 site visit by a team of external evaluators, noted that *the values of the institution and the philosophy of military medicine are an exceptionally good fit with the values and philosophy which underlie public health and preventive medicine. The program has strong ties to the military community, both locally and worldwide, and the instructional programs have particular relevance to the needs of the Uniformed Services to which the program graduates will return after their training. The curriculum is quantitatively-oriented and rigorous.* The PMB Graduate Programs in Public Health are fully accredited through 2005.

Following the CEPH accreditation process in 1998, an *ad hoc* committee was established to articulate the mission, goals, and objectives of the PMB Graduate Programs. The PMB Department has continued to use this document as part of a dynamic process of program review and evaluation for continuous quality improvement, including efforts to identify measurable program outcomes. In addition to the rigorous, quantitatively-focused curriculum (60 credit hours), *students are required to complete a 108-hour practicum experience*, as well as an independent project. Greater emphasis has been placed on basic research methodology, and students are encouraged to present their research results at scientific meetings and to submit manuscripts to peer-reviewed journals for publication. The **Program Director, Colonel Gary D. Gackstetter, DVM, Ph.D, MPH, BSC, USAF, Assistant Professor, USU SOM Department of PMB**, can be contacted by e-mail at <ggackstetter@usuhs.mil> or at <www.usuhs.mil/pmb/pmb.html>.

In response to the CEPH requirement for a practicum or field experience as part of the MPH Program, a new departmental program office was established to direct graduate student activities related to the practicum experience and the required MPH independent project. During their 108-hour practicum experience, students have the opportunity to apply knowledge and skills learned in the classroom

within various *real world* settings at public health agencies and other health-related organizations offering practical experiences as a planned, supervised, and evaluated educational activity. Examples of practicum sites include the following: Headquarters, United States Air Force Safety Center; the National Security Administration; the Pentagon, Defense Medical Oversight Committee; the Food and Drug Administration's Center for Veterinary Medicine; the State of Maryland's Department of Health and Mental Hygiene; the United States Consumer Product Safety Commission; Clinical and Program Policy in the Office of the Assistant Secretary of Defense for Health Affairs; and, the White House Commission on Complementary and Alternative Medicine Policy. **Tomoko (Tonie) I. Hooper, MD, MPH, Assistant Professor, USU SOM Department of PMB**, is the Director of Graduate Research and Practicum Programs; and, she also serves as the Deputy Director for the Department of PMB's Graduate Education Programs.

Finally, the USU SOM Department of Preventive Medicine and Biometrics submitted an application for accreditation from the ***Accreditation Board for Engineering and Technology (ABET)*** in support of PMB's Environmental and Occupational Health Division in October of 2003; the review process by ABET proved to be a positive one. The University expects to receive a formal response from ABET in July of 2004.

Outstanding Responsiveness to the Continuing Medical Education Requirements of the TriServices.

The Occupational Ergonomics Program. Recognizing the importance of occupational musculoskeletal injuries among military personnel and in response to the Army's request for specialty training in occupational ergonomics within the MPH Program, a new area of concentration was established, the Occupational Ergonomics Concentration in the Department of Preventive Medicine and Biometrics Master of Public Health Program. The first student entered this program in July of 2002, and graduated in June of 2003. *The Occupational Ergonomics Program is the only established graduate-level injury prevention program in the Department of Defense;*

The International Health Specialist (IHS) Program was initiated in 1999, under the guidance of **Lieutenant General Paul K. Carlton, Jr., Surgeon General of the Air Force**. Numerous After Action Reports (AARs) indicated that Humanitarian Assistance (HA) and Disaster Response (DR) missions would benefit if members of the Air Force Medical System (AFMS) received additional training. The goal of the IHS Program is to prepare regionally-focused military medical experts who can help prepare uniformed forces for operational contingencies and the global response to medical crises during war and/or peacetime deployment. The AFMS members may be selected for full-time IHS assignments in support of Combatant Commander's Theater Engagement Plans. Individuals selected for the positions will be prepared with short courses and rotations as well as degree programs, i.e., the Master of Public Health (MPH) Degree with a regional, humanitarian assistance, disaster response, or international health focus. A memorandum of understanding was signed between the Office of the Air Force Surgeon General and USU during November of 2001, to design, test, and implement an educational and academic curriculum for the IHS Program;

The USU/SOM MPH Program is a 12-month program consisting of 60 quarter credit hours; in addition to the MPH requirements, the IHS students are required to take: International Health I; International Health II; Medical Anthropology; Joint Medical Operations and Humanitarian Assistance; Public Health Issues in Disasters; Historical Perspectives of International Health; and, Introduction to Epidemiology II. Furthermore, IHS students must also select three additional electives from the following courses: Program Planning & Development; Principles and Practice of Tropical Medicine; Malaria Epidemiology and Control; Travel Medicine Practicum; Biostatistics II; and, Deployment Environmental Exposures. IHS graduates are expected to use their acquired quantitative and analytical skills in biostatistics and epidemiology to identify and measure community health needs and to investigate the impact of biological, environmental, and/or behavioral factors in solving public health problems. ***Each graduate will understand the components, operations, and financing of health delivery services and have the administrative skills to plan, analyze, manage, and improve public health programs for the Uniformed Services.*** The graduate will also understand the role that the United States military and other organizations and agencies play in addressing global health issues. And, the graduate will be able to apply public health principles toward assessing international health needs and in the planning, conducting, and evaluating of international health-related activities and projects. Four students matriculated into the program during 2002; and, all four graduated in June of 2003; currently, there are four additional IHS students who are projected to graduate in June of 2005;

The Ph.D. Program in Environmental Health Science was recently established in response to identified needs within the Uniformed Services. The first Ph.D. in Environmental Health Science was granted in May of 2003. Three active duty Naval officers, are currently enrolled in the Ph.D. program;

The Master of Science in Public Health (MSPH) Program has graduated five degree candidates between 2000 and April of 2004; during 2003, one officer graduated from the Health Physics specialty of the MSPH. Thirteen Navy, Air Force, Army, and Public Health Service officers are currently enrolled in the Environmental and Occupational Health and the Health Physics specialties in the MSPH Program; four of these students are expected to graduate during 2004. Students in both the Ph.D. and MSPH Programs design and conduct research with military relevance. ***Past and current projects have included the development of chemical warfare detection methods and instrumentation.*** The students and program faculty work closely with the Services and other Federal and international organizations to identify and address current needs for operational forces and emergency responders;

The Aviation Physiology Specialty Track in the Master of Public Health Program has been offered for the past four years. The track consists of 5 courses: Aviation Operational Physiology I and II; Aviation Human Factors; Aviation Physiology; and, Special Topics in Aviation Physiology. This course of study prepares students for a career in the military as an Aviation Physiologist. Since 1999, 7 students have completed the program and three students have audited the course. Both of the students, who participated in the program during the 2000-2003 term, were accepted into the United States Navy's Aerospace Physiology Program. Each year, the program has expanded; this year's emphasis incorporated additional mishap investigation techniques; plans are to continue in this area throughout 2004, to include establishing a modeling segment. And, plans are also in place to develop a course in Hyperbaric Medicine during 2004;

The TriService Advanced Military Tropical Medicine Course has been offered at USU, beginning in 1996, through the Summer of 2003. During 2003, 71 military medical officer students were trained in operational military medicine, consisting of four weeks of lectures and laboratories in the advanced diagnosis and treatment of tropical diseases. Approximately 70 lecturers provided over 106.5 hours of didactic instruction. To date, over 425 students have completed the course. One hundred and thirteen continuing medical education hours (CME) were awarded during the past year; the overseas field missions were attended by 38 medical officers (El Salvador - 17; Bolivia - 8; Peru - 8; Cairo - 3; and, Thailand - 2);

The Tropical Medicine and Travelers' Health Course is offered as a 12-week course during the Spring Quarter of the MPH Program. It includes lecture, seminar, laboratory and case-based curriculum approved by the American Society of Tropical Medicine and Hygiene and leads to eligibility for the qualifying examination in Tropical Medicine and Travelers' Health. To date, 31 uniformed medical officers and 11 civilian physicians have completed the course;

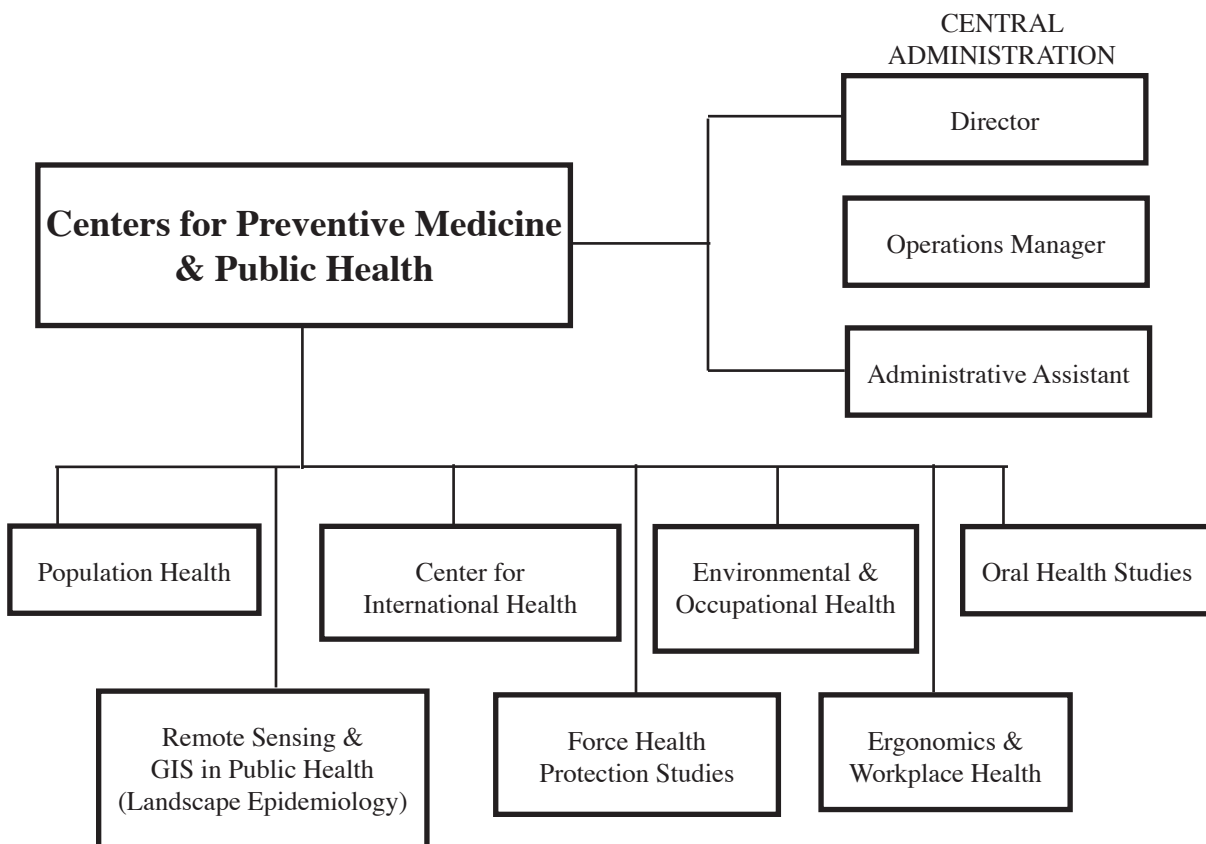
The Diagnostic Parasitology Course is offered as a series of lectures and hands-on laboratory sessions for individuals wishing to study parasitic infections in humans. Uniformed and civilian medical technologists and physicians from all parts of the world have completed this course. Participants for the course have included: United States Embassy personnel from Asian and African countries sent by the United States Department of State; members of the Peace Corps; a medical doctor from the Japan Ground Self Defense Force; and, civilians from various foreign and domestic health related organizations. Since 1988, over 290 individuals have taken the course, to include 10 individuals who took the course during 2003; and,

Critical Decision Making for Medical Executives: Keys to Improving Population Health, a five-day training course held four times each year, responds to the Congressional mandate that current and prospective DoD health care leaders receive training in health care management and administration. The focus of the course is to equip health care professionals with the knowledge and tools needed to integrate clinical and business decisions to improve health care delivery and population health. To date, 34 sessions have been held in the TRICARE Regions and approximately 950 senior officers have been trained for the MHS.

Centers for Preventive Medicine and Public Health.

The Centers for Preventive Medicine and Public Health (CPM/PH) are an entity within the USU SOM Department of Preventive Medicine and Biometrics. The seven Centers, under the direction of **Kenneth E. Kinnamon, D.V.M., Ph.D., Professor, USU SOM Department of Preventive Medicine and Biometrics**, operate under terms of a Memorandum of Understanding with the Henry M. Jackson Foundation for the Advancement of Military Medicine. The Centers combine broad expertise in research, consultation, education, training, and clinical preventive medicine and public health; this expertise is used to develop data bases and analytical methodologies, prepare innovative curricula, and evaluate processes and outcomes in clinical practices. The following seven Centers provided consultative, research, and educational services to the TriServices during 2003:

- 1) The Center for Application of Remote Sensing and Geographic Information Systems (GIS) in Public Health (Landscape Epidemiology);
- 2) The Center for Environmental and Occupational Health;
- 3) The Center for Ergonomics and Workplace Health;
- 4) The Center for Force Health Protection Studies;
- 5) The Center for International Health;
- 6) The Center for Oral Health Studies; and,
- 7) The Center for Population Health.



The Center for Application of Remote Sensing and Geographic Information Systems in Public Health (Landscape Epidemiology).

Background. Remote sensing has an increasingly prominent role in the improvement of public health programs; as a result, a significant number of graduate students in public health are seeking formal training and experience in remote sensing technology. The Center's earlier National Aeronautics and Space Administration (NASA)-supported research and equipment, along with additional equipment provided by a special NASA grant for the purchase of hardware and software, have been used to establish a Center in which remote sensing technology is applied to emerging and re-emerging infectious diseases and environmental health.

Mission. The Center provides faculty expertise and the software and hardware necessary for students and faculty to engage in remote sensing (RS) and geographic information systems (GIS) research projects in public health.

Donald R. Roberts, Ph.D., Professor, USU SOM Department of Preventive Medicine and Biometrics, served as the Director for the Center during 2003. Doctor Roberts is a member of: the American Society of Tropical Medicine and Hygiene; the Society of Vector Ecology; and, the American Mosquito Control Association. He is interested in developing new and innovative models for malaria control and in applied research for testing different approaches to controlling malaria. For many years, he has studied the behavioral responses of malaria vectors to insecticide residues and this research has culminated in a new conceptual model for actions of insecticides in malaria control programs; these efforts have resulted in numerous scientific publications and extensive press coverage. Doctor Roberts continues several lines of funded research, including a National Institutes of Health/National Science Foundation funded research program in Belize on assessing the impact of anthropogenic environmental change on malaria; and, malaria vector ecology, a NASA funded research program to apply GIS and remote sensing technologies to the study of vector-borne diseases. Doctor Roberts also serves as the Office of the Army Surgeon General representative (alternate) to the Armed Forces Pest Management Board. And, he serves as the DoD representative on the Department of the Interior's National Invasive Species Council Interagency Subcommittee on Early Detection and Rapid Response.

Educational Activities. The Center offers a four-hour credit course entitled, *Remote Sensing and GIS Methods in Public Health*, and non-credit training classes in remote sensing and GIS to students and faculty. Both credit and non-credit courses cover the basic elements usually taught in remote sensing and geographic information systems (GIS) with emphasis on the areas most relevant to public health (such as classification, raster GIS modeling, and integrating field maps with remotely sensed images). The credit course, first presented during the Winter Quarter of 1998-1999, has been offered in the Fall Quarters of 1999 through 2003. The course covers remote sensing, image processing, GIS, and spatial analysis methods as applied to the field of public health. The goal of the course is to provide students with a combination of theoretical background, example applications in the published literature, and hands-on experience in using hardware and software to enable the students to use the techniques discussed in class in a knowledgeable way in their research and future work in public health. The lectures cover types of

remote sensing imagery, image processing, photointerpretation of various imagery types, application of remote sensing to public health, the overview and history of GIS, GIS data structures, entering data into a GIS geographic analysis, cartographic presentation, and applications of GIS to public health. The laboratory provides students with hands-on experience in the public health uses of image processing and GIS software. The students and faculty have been enthusiastic about the course; the next presentation of the course is scheduled for the Fall Quarter of 2005.

Computer and Equipment Support for Research Activities. Recently funded research proposals use the Center computers to perform research. A proposal funded by the National Oceanographic and Atmospheric Administration (NOAA) is studying climate change and its effect on Bartonellosis in Peru. Another proposal funded by the National Institutes of Health (NIH) studies the effect of human-induced change on mosquito habitats in Belize. Both use Center computers in support of research activities. The former grant is for a three-year period and the latter is a five-year grant. The Center's printers are being used to assist in the publication of research results from the Center. As the training and course work continue, the Center staff anticipates that students and faculty will be adding new projects to the Center in both infectious disease and environmental health studies.

Malaria Research in Belize. The Center has continued studies in Belize to apply remote sensing and geographic information systems to the National Malaria Control Program. The Center has been working on malaria in Belize since 1995, with funding from NASA. The Center has received a five-year grant from the National Institutes of Health (NIH) along with the University of California, Davis, to continue its work in Belize. Research under the NIH grant is focused on studying human-induced change, such as deforestation along streams and changes in marsh vegetation due to agricultural runoff, and the effect these changing environments have on the distribution of malaria in Belize. One DrPH student is currently using the historical malaria data collected during the earlier Belize research in her dissertation. Another Ph.D student in Medical Zoology is contributing to the mapping of deforestation along rivers under the Belize grant and will use this study as part of her dissertation.

Malaria Research in Thailand. During 2001, work began on remote sensing and geographic information systems to define spatial relationships between mosquitoes, humans, and malaria incidence in Thailand. This study is a collaboration among investigators with the Division of Tropical Public Health in the USU SOM and Army researchers at the Armed Forces Research Institute of Medical Sciences (AFRIMS), at Bangkok, Thailand; it is funded by the United States Army Medical Research and Material Command. The principal investigator, Doctor Leon Roberts, presented the collaborative research at the Annual Meeting of the American Society of Tropical Medicine and Hygiene in November of 2002. During Fiscal Year 2004, this research project will be expanded to study the spatial relationships of scrub typhus in Thailand.

Bartonellosis Research in Peru. Work was also continued during the past year on applications of remote sensing to study bartonellosis in Peru. The work in Peru was initiated in 1997, in conjunction with the research of other investigators, within the Division of Tropical Public Health in the USU SOM and Navy researchers at the Navy Research Laboratory in Lima, Peru. In 2000, a three-year grant to look

at climate variables and the incidence of bartonellosis was received from NOAA. This work is being done with two climatologists at NASA's Goddard Space Flight Center.

The Center for Environmental and Occupational Health.

Mission. The Center for Environmental and Occupational Health promotes excellence in programs focusing on environmental and occupational health by providing research, consultation, education, and training support to government entities and educational institutions. Areas of interest pertaining to environmental and occupational health include: policy; education and training; health risk and hazard assessment standards setting; resource management; regulatory compliance; pollution prevention; and, environmental restoration.

Lieutenant Colonel Thomas A. Neal, USAF, MC, MPH, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics, served as the Director of this PMB Center during 2003. Doctor Neal is a member of both the American College of Occupational and Environmental Medicine and the American Society for Laser Medicine and Surgery. Four courses in Graduate Education Programs are taught by Doctor Neal; he is: the Course Director for *Essentials of Toxicology*; the Co-Course Director of *Occupational and Environmental Epidemiology*; a lecturer in *Environmental Health*; and, an MPH/MSPH Student Advisor for *Directed Studies & Research*. Within the SOM curriculum, Doctor Neal serves as the Director of the second year *Preventive Medicine Occupational Medicine Module*. He is the Principal Investigator on the grant, *Enhancement Through Operational Research of the U.S. Army's Global Preventive Medicine Program*; this is a five-year follow-on research project, from April of 2001 through March of 2006, for the United States Army Center for Health Promotion and Preventive Medicine (CHPPM).

Research Activities.

Indian Health Service Education and Training Support Program. At first, the principal output of this program was the administration of a one-year Environmental Health Post-Graduate Fellowship on behalf of the Indian Health Service of the United States Public Health Service. In July of 2001, two students from the Indian Health Service (IHS) began their studies at USU in the one-year Master of Public Health (MPH) Program; the two students received their MPH Degrees in June of 2002. Throughout the Fall of 2001, and the Spring of 2002, **Colonel Robert Lipnick, MS, USA, Division of Environmental and Occupational Health, PMB**, coordinated with the IHS in the development of a variety of rotations/courses that would compose a second year of Environmental Health Post-Graduate training. Due to that effort, the two initial students successfully experienced a second year of study, which concluded in 2003.

Enhancement Through Operational Research of the United States Army's Global Preventive Medicine Program. This project is a follow-on to an original grant initiated in July of 1995, which terminated on March 31, 2001. The original grant consisted of nine separate research initiatives: health risk assessment; health promotion; health hazard assessment; occupational and environmental medicine; environmental compliance and pollution prevention; medical entomology; radiation protection; preventive medicine and readiness planning; and, preventive medicine planning and integration. Five

research tasks were to be accomplished: conduct a program assessment; develop alternative program change methodologies; develop measures of merit to evaluate alternative methodologies; implement and evaluate the selected methodology; and, publish results. The total funding level was set at \$21.362 million. The research took place at the United States Army Center for Health Promotion and Preventive Medicine (CHPPM). During the five and one-half years of the original project, over 500 publications were produced, including technical reports and assessments, peer-reviewed and other publications, training session materials, studies, and professional meeting presentations.

Because of the success of the original grant project, CHPPM reinitiated a follow-on project with USU and the Henry M. Jackson Foundation (HJF) that began on April 1, 2001, as a contract effort. Funding, in the amount of \$4.2 million for the first year (April 2001 through March 2002) of the follow-on project, was received. The follow-on project entitled, *Enhancement Through Operational Research of the United States Army's Global Preventive Medicine Program*, is divided into ten study areas: 1) Health Risk Assessment; 2) Health Promotion; 3) Health Hazard Assessment; 4) Epidemiology and Medical Surveillance; 5) Environmental Health and Compliance; 6) Medical Entomology; 7) Radiation Protection; 8) Ergonomics; 9) Clinical Preventive Medicine; and, 10) Informatics. A total of 58 personnel were employed through the HJF for this project. At the completion of the first year, the project was re-established as a new one-year contract effort on April 1, 2002, with four follow-on option years built in. Funding in the amount of \$3.2 million was received for the first year of the new contract (April of 2002 through March of 2003); \$2.8 million was funded for the second year (April of 2003 through March 31, 2004). As of September 30, 2003, 31 personnel were employed through the HJF to work on the project. The reduction from 58 personnel primarily occurred through the conversion of HJF employees to temporary employees at CHPPM with Civil Service status.

Development of Environmental Organic Contaminant Sampling and Analysis Methods. The Center's research group studying field-detection methods for military relevant chemicals has been focusing on three areas: field detection methods for military relevant compounds; instrument development; and, training for field chemical detection.

Field Detection Methods for Military Relevant Compounds. Research has focused on the use of solid phase micro-extraction (SPME) coupled to gas chromatography-mass spectrometry (GC-MS) as a field expedient method for the detection of cyanide in water. Collaborating with the Armed Forces Radiobiology Research Institute (AFRRI) and Defence Research and Development of Canada (DRDC)-Suffield, ***PMB Center researchers have completed studies on dynamic SPME sampling for quantitative analysis of airborne Sarin (GB).*** Using a concept previously identified in scientific literature, a dynamic sampler was designed and built at AFRRI and challenged with GB at DRDC-Suffield. The sampler was found to provide linear results that closely estimated the actual airborne concentration of GB.

An MSPH student, in conjunction with the Federal Bureau of Investigation Forensic Research Laboratory and DRDC-Suffield, has initiated research utilizing a commercially available low thermal mass, resistively heated column for the rapid separation of complex organic mixtures and chemical warfare agents in the field. ***This work has demonstrated the ability to separate and identify a complex mixture of five airborne chemical warfare agents in under three minutes.*** This work has been coupled with the Center's collaboration with the Soldier Biological Chemical Command and DSO National

Laboratories, Singapore, for rapid field detection of low concentrations of chemical warfare agents in water. Another MSPH student, funded by the United States Army Center for Environmental Health Research, is conducting research on the use of SPME/GC-MS for the detection of pesticides in water.

Instrument Development. Research is currently underway that will enhance field analytical capabilities through the enhancement of existing equipment and the development of a new, rapid GC-MS. An MSPH student is collaborating with Inficon, manufacturer of the Hapsite portable GC-MS. This effort focuses on the development of a SPME injection port for the Hapsite. This instrument is currently limited to analysis of samples already in the gas phase. This will enhance the capabilities of the instrument by enabling it to analyze non-gas phase samples (i.e., aqueous samples).

The most current instrument development effort is funded by MARCORPSYSCOM and is being conducted in collaboration with RVM Scientific. This effort will couple a commercially available resistively heated, low thermal mass (LTM) GC column directly to a mass spectral detector (MSD). Currently, this technology is used as an add-on to the existing air-bath GC oven. ***The direct coupling of the LTM column to an MSD will provide an analytical instrument capable of extremely rapid separations with a significantly reduced footprint, which is of great importance for field deployment.***

Training for Field Chemical Detection. The EOH research group continues to provide focused GC-MS training for military field GC-MS operators. The formal, 12-week GC-MS Course, developed and taught last year, is being conducted again for the USMC Chemical Biological Incident Response Force (CBIRF). ***Weekly training evolutions have continued with the CBIRF throughout 2003, as well as faculty and student involvement in CBIRF's live-agent training at DRDC-Suffield.***

Triage and Treatment of Laser Eye Injury on the Modern Battlefield. This research will study five task areas:

Task 1. This task will make major equipment purchases, which will include high energy laser sources operating in the 1.3 to 2.0 μm spectral region, and support equipment (i.e., optics, detectors, and analysis equipment). Funding was accomplished in March of 2003.

Task 2. This task will determine *in vitro* and *in vivo* thresholds for injury at 1.3, 1.5, and 2.0 μm wavelengths. This information will be used to determine: correlations between gross appearance of lesions following *in vivo* and *in vitro* exposures; correlations of biomarker expression between *in vivo* and *in vitro* exposures; and, theoretical and predictive models of the biophysical damage mechanisms to tissue from these wavelengths.

Task 3. This task will utilize histomorphometric and biomarker data and other information from Task 2 to develop battlefield treatment techniques for thermal injuries (linear phenomena) at, or near, the threshold for injury. ***Battlefield treatments will focus on using supplies/pharmaceuticals already carried by a field medic.*** Special emphasis will be made on contraindicated battlefield treatments.

Task 4. This task will determine thresholds for non-linear phenomena in the cornea. These non-linear effects are expected to be mechanically more disruptive to tissue, causing damage that is consistent with tearing and ripping of tissue rather than the thermal damage expected in Task 2. This information will be used to determine: extent and permanency of tissue damage through *in vivo* and *in vitro* exposures; biomarker correlation between *in vivo* and *in vitro* exposures from the more severe, non-linear effects induced injuries; and, theoretical and predictive models of the biophysical damage mechanisms to tissue from non-linear effects.

Task 5. This task will utilize histomorphometric and biomarker data and other information from Task 4 to ***develop battlefield treatment techniques for non-linear injuries significantly above the ED threshold for injury.*** Battlefield treatments will focus on using supplies/pharmaceuticals already carried by a field medic. Special emphasis will be made on contraindicated battlefield treatments, with a goal to return the service member to active duty.

Health Effects of the 3800 nm Laser. This project has yielded a multitude of information in three main areas: artificial skin, pig skin, and human skin reactions:

Artificial Skin. Studies performed with artificial skin were performed in conjunction with the University of Illinois. Histology and gross effects were used to predict the effects of the laser on pig skin. This information provided a starting point for the animal models; the initial ED was ascertained based on this model.

Pig Skin. Studies have found the ED for various types of skin reactions. Each reaction was characterized by photograph; and, analysis using histology is in progress. ***This information, in conjunction with the artificial skin findings, will be utilized to help set new standards for skin exposure*** in the ANSI Z136.1 *Safe Use of Lasers* standard.

Human Skin. The thresholds for human skin sensation to this laser was also investigated, in order to determine if aversion response is possible. This investigation is in its preliminary stages; approximately half of the subjects have been exposed. ***This information will also be utilized to help revise and revisit aversion response as it is related to the safety standards currently in place.***

Laser Injuries. This project was successful in hiring a dedicated technician in May of 2003; two graduate students were also assigned to the project. One graduate student is ascertaining the best methodology to determine useful information for the Air Force from available databases; she will continue on the project until June of 2004, when she graduates. This graduate student, **Lt. Krystyn Clark, USAF**, was a keynote speaker at the International Laser Conference; multiple individuals noted that hers was the best presentation at the conference. Lt. Clark has been strongly encouraged by the safety community to rapidly publish the data; she has already submitted an abstract for SPIE (Photonics West) for January 2004, and the International Radiation Protection Association's Conference in Madrid, Spain, during 2004. She will also present her work, in 2004, at the annual Health Physics Society meeting in Washington, D.C. A second graduate student began assisting on the project in September of 2003; he will be investigating the medical surveillance aspects of this project. The Center has long

sought to perform a detailed analysis of the medical surveillance efficacy currently in place; this graduate student is interested in reviewing the efficacy and the basis for the examinations.

The Military Human Exposure Assessment Study. The Center investigator has been working with **Major Lisa May, DrPH candidate** to complete research in the area of human biomarkers and military deployments. Following receipt of Institutional Review Board approvals from USU and CDC, Major May solicited 51 individuals to volunteer in this research. Study volunteers provided informed consent and completed questionnaires; they also provided blood and urine pre-, during, and post deployment to Bosnia during March through September of 2002. Environmental samplings of air, water, and soil were also gathered. All samples were analyzed for chemical warfare agents (sulfur mustard and nerve agent), total and isotopic uranium, volatile organic compounds, and heavy metals. The CDC and Armed Forces Institute of Pathology analyzed samples and provided research funding and collaboration. Major May had two manuscripts accepted for publication from the research, presented at numerous scientific seminars, and defended her research on November 3 and 12, 2003.

The Center for Ergonomics and Workplace Health.

Mission. The Center for Ergonomics and Workplace Health focuses on an integrated approach to ergonomics and occupational health, targeting both the civilian and military workplace. Research in the Center is directed at understanding the interactive roles of medical, biomechanical, organizational, workplace and individual psychosocial factors in the etiology, prevention, and management of prevalent occupational health problems. Currently, the Center conducts research on the mechanisms and management of workplace musculoskeletal disorders and is also involved in education, public policy, and consultation. The Center is a joint effort between the USU SOM Departments of Preventive Medicine and Biometrics *and* Medical and Clinical Psychology. **Michael Feuerstein, Ph.D., MPH, Professor, USU SOM Department of Medical and Clinical Psychology, served as the Director of the Center during 2003.** Doctor Feuerstein is a *Member* of the National Academy of Sciences, the Institute of Medicine, the Human Factors and Ergonomics Society, the Association for Advancement of Behavior Therapy, and the International Association for the Study of Pain. In addition, he is a *Fellow* at the Academy of Behavioral Medicine Research, the American Psychological Association and the Society of Behavioral Medicine.

Research Activities.

Patient Satisfaction, Cost and Treatment Guidelines: Musculoskeletal Disorders. The premise for developing treatment guidelines is to improve health care outcomes and costs for the disease, injury, or disorder, which is addressed, using existing standards of care. The DoD and the Department of Veterans Affairs (VA) have developed treatment guidelines for a number of health problems. Among the existing treatment guidelines are standards for treating low back pain and chronic pain; however, at this time, no DoD/VA guideline exists for the treatment of upper extremity pain. It is currently unclear what effects these guidelines have on patient satisfaction outcomes. In addition, it is not known whether the treatment guidelines are most efficacious for disorders involving specific etiologies. The study has two aims: 1) to compare the patient satisfaction outcomes from the Health Care Survey of DoD beneficiaries and the administrative data on treatment costs for active duty personnel with low back pain diagnoses (disorders for which there is an existing treatment guideline) in contrast to upper extremity pain (not addressed with a treatment guideline at this time); and, 2) to compare the same data from low back pain cases with data from chronic pain cases. The first comparison will highlight any benefits gained from the existence and implementation of treatment standards. The second comparison will determine if treatment guidelines have any differential effects for disorders with, or without, localized pain sites and clearer etiology. This study is funded by the Epidemiology Health Program Analysis and Evaluation branch of the TRICARE Management Activity (Departments of Defense and Veterans Affairs).

Prospectively Identifying Patterns of Ergonomic and Work Organization Risk Factors for Musculoskeletal Disorders. USU Center researchers have identified low back and upper extremity disorders to be the major sources of lost time and clinic visits in the United States Marine Corps. While there has been an increasing number of studies that have identified risk factors for work-related musculoskeletal disorders, no prospective studies have examined combinations of ergonomic and

specific work organization factors related to time pressure, cognitive demands, interpersonal demands, and participatory management. The aims of the present study are to: 1) determine the incidence of diagnosed low back and upper extremity disorders among enlisted Marines; and, 2) delineate ergonomics and specific work organization risk factors for such musculoskeletal outcomes at six and twelve months through a post- baseline questionnaire. Follow-up data on ICD-9 musculoskeletal-related diagnoses recorded at clinic visits will be obtained from a medical administrative database. This investigation represents a key next step in a series of studies designed to develop an innovative secondary prevention program for work-related low back and upper extremity-related disorders. ***In particular, findings may shed light on those ergonomic factors and specific dimensions of work organization to be targeted in prevention efforts.*** Furthermore, the prospective nature of this research can potentially provide insights into mechanisms for musculoskeletal outcomes and assist in reducing burdens associated with health care utilization, financial costs, and lost productivity. This study is funded by the Johns Hopkins NIOSH Education Research Center.

Workstyle Intervention for the Prevention of Work-Related Upper Extremity Problems. Work-related upper extremity disorders (WRUEDs) are a considerable source of distress and disability in the modern workforce. Research has identified that physical factors (i.e., workplace ergonomic design and biomechanical motions required by the task, etc.), psychosocial risk factors (i.e., workplace stress, workload, etc.), and personal risk factors (i.e., individual coping style, appraisal style, medical history/status, etc.) all play a role in the development, exacerbation, and maintenance of WRUEDs. However, prevention methods often focus on the modification of only one of these risk factors (i.e., the focus is on ergonomic redesign only or only on individual stress management). ***Recent investigations using combined approaches (i.e., ergonomic redesign and individual stress management) show promise for increasing the effectiveness and durability of intervention benefits.*** Workstyle is a description of how people perform their work and is proposed as a mechanism by which ergonomic and psychosocial stressors in the workplace interact with the individual's response style to place a worker at risk for the development and/or exacerbation of WRUEDs. Inclusion of workstyle-related interventions into workplace WRUED prevention (primary and secondary) programs may result in better overall treatment gains. This study is a randomized controlled trial of workplace intervention for the secondary prevention of work-related upper extremity symptoms and functional limitations. Symptomatic workers will be assigned to one of four treatment conditions: ergonomics-only (current standard practice); workstyle only (investigation of cognitive-behavioral modification of how individuals perform work); workstyle and ergonomics combined condition; and, wait-list control. Measures of ergonomic risk, psychosocial stress, workstyle response, and symptom status will be collected at baseline, post-treatment, and at a three-month follow-up period. The aim of this study is to determine if the addition of workstyle-related interventions result in positive outcomes. The findings may enhance the development of effective workplace programs to prevent WRUEDs. This project is funded by the PMB Ergonomics Research Committee and will be conducted in collaboration with the CNA Insurance Company in Chicago, Illinois.

Work-Related Upper Extremity Disorders in Sign Language Interpreters: A Qualitative Analysis. This study provides a qualitative content analysis of sign language interpreters (n=1092) across the country (National Register of Interpreters) in relation to the development of work-related upper extremity symptoms and their management (medical, health care in general, and work-related).

The Center for Force Health Protection Studies.

Mission. The Center for Force Health Protection Studies conducts a comprehensive research program on the short- and long-term health outcomes associated with military operational environments, in particular, the conditions and experiences associated with training, deployment, combat, and humanitarian and disaster relief operations. For example, current efforts are underway to distill the findings of research across disciplines on the health outcomes associated with service in the Gulf War. The Center promotes the use of a systematic process to prospectively evaluate disease and non-battle injuries in military and veteran populations for guiding health policy development. ***The Center's goal is to enhance the scientific knowledge base for military deployment health and to develop recommendations for preventive health interventions.*** The research focus is on studies that collect, manage, and integrate health-related data for purposes of risk assessment and risk communication to protect individuals who serve the Nation during peacetime and during war. The Center develops databases, analytic methodologies, and models for predicting health outcomes, as well as for identifying and evaluating or designing specific interventions for preventing injury and illness. The Center also disseminates information to promote force health protection and participates in interagency research and development programs. It also provides consultation to program managers and executives in the health-related components of the DoD, the Department of Veterans' Affairs, other Federal agencies, local governments, and private organizations. **Tomoko I. Hooper, M.D., MPH, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics, served as the Director of the Center during 2003.** Doctor Hooper maintains *Diplomate* status with the American Board of Preventive Medicine, General Preventive Medicine/Public Health and the National Board of Medical Examiners. Doctor Hooper is a Co-Course Director in three PMB Graduate Education Courses (*Introduction to the MPH Project and Practicum*, *MPH Project/Practicum Design and Development*, and the *MPH Project/Practicum Implementation and Evaluation*; and, she serves as the Course Director for *Public Health Practicum* and the *MPH Independent Project*.

Changes in Organization During 2003.

The Center for Military Medical Analysis and Projection (formerly an independent center) was realigned with the Center for Force Health Protection Studies in January of 2003. USU faculty researchers continued to participate in the planning, review, and conduct of epidemiologic studies designed to assess health outcomes associated with the conditions and experiences of military service, to include deployment and combat, as well as missions related to humanitarian assistance. After a seven-year relationship with the researchers at the Naval Health Research Center (NHRC) in San Diego, California, it is expected that all operations related to USU administrative and fiscal oversight of previous collaborative research would end during February of 2004. However, several USU researchers will continue to work with the research team at NHRC, notably as co-investigators on the landmark Millennium Cohort Study and several other projects, under the current inter-institutional Memorandum of Understanding. ***The focus of this Center on studies related to force health protection continues to be reflected in the various on-going and planned collaborative research activities within the Center.***

Research Activities.

Epidemiologic Support of Health-Related Research Pertaining to Military, Veteran, and Dependent Populations. All funding under this grant has been exhausted; however, work continued under a no-cost extension through February of 2004. Total grant support was approximately \$17.6 million, with a follow-on grant funded at \$2.2 million; the Center submitted a final report to the USU Office of Research Administration to close out the grant in December of 2003, which included the status of the 28 sub-projects that had been monitored as part of this collaborative research program with NHRC. The program's focus was in the areas of: 1) emerging illness research; 2) deployment health research; and, 3) other research with direct relevance to military populations, such as studies of vaccines, complementary and alternative therapies, and reproductive outcomes. The Center will continue its collaboration on the Millennium Cohort Study with the NHRC researchers, as well as other projects of importance to military force health protection. These studies and others continue to add to the scientific knowledge base on a wide range of public health related topics, including epidemiologic methodology for population-based studies, reproductive outcomes, vaccination policy, as well as the health effects of exposures and experiences associated with military service.

The Millennium Cohort Study. Conceived in 2000, initial data collection for the baseline cohort began in July of 2001. A modified Dillman approach was used to construct the initial cohort. Enrollment was nearly 80,000 at the close of the initial enrollment phase. Additional cohorts, of approximately 40,000 in 2004 and 20,000 in 2007, will be added for a total of 140,000. Work on a survey instrument for the 2004 recruitment has been initiated. Two, of the Center's seven investigators on the original research team, participated in regular teleconferences, annual meetings with the Scientific Steering and Advisory Committee, and had responsibility for the development of guidelines for future collaborative research studies using the Millennium Cohort data. The purpose of the collaborative research guidelines is to preserve the integrity of the original study design and protect the study cohort from inappropriate contact, misuse of collected data, or the introduction of bias by peripheral research investigations.

Case-Control Study of Fatal Motor Vehicle Crashes Among Gulf War and Non-Deployed Veterans. The Principal and Co-Investigator on this research project attended the annual American Institute of Biological Sciences (AIBS) Scientific Peer-Review of Federally Funded Force Health Protection Studies, which was held in San Diego, California, during February of 2003. They provided updates on both the fatal motor vehicle crash (MVC) study and the Saudi Arabian National Guard study. Results of bivariate and multivariate analyses for the nested case-control study of fatal MVC were presented. AIBS reviewers recommended additional analyses to include the evaluation of possible interaction between military unique variables and other risk factors for MVC and the application of factor or cluster analysis to construct risk profiles. A protocol amendment was submitted incorporating these recommendations along with a request for supplemental funding to the United States Army Medical Research and Materiel Command. A grant for \$281,950 was awarded in August of 2003 (for a cumulative total of \$786,000); the research was renamed as, *A Nested Case-Control Study of Fatal Motor Vehicle Crashes Among Gulf War Era Veterans*. USU investigators meet regularly with VA and other collaborators to consider strategies and timelines to implement additional data analyses and manuscript preparation. ***A new analytic data set will be created to include data on pre-deployment hospitalization,***

potential exposure to the demolition plume at Kamisiyah, and separation from military service (to include the reason(s) for separation). USU investigators presented posters at the 6th Annual Force Health Protection Conference held in Albuquerque, New Mexico, on August 11-14, 2003. Their poster entitled, *Hazards Associated with Deployment: Fatal Motor Vehicle Crashes Among Veterans of the Gulf War Era*, was selected as one of the top five posters. Two manuscripts, one on methodology and the other on sub-group analyses, were projected to be in final form by the end of 2003. Efforts to identify and secure additional funding for a follow-on study of non-fatal motor vehicle crashes for the purposes of ultimately identifying, implementing, and evaluating preventive interventions to reduce the injuries and deaths caused by motor vehicle crashes are continuing.

Medical Events During Periods of Isolation: The United States Navy Submarine Force Experience. The results of a study conducted aboard one submarine during a 101-day submergence (under a 1997 amendment to the original protocol) were published in Aviation, Space, and Environmental Medicine in August of 2003. Data collected during this study included responses to the Profile of Mood States survey (POMS) administered at the beginning, midpoint and end of the underway period to capture transient mood states among the submarine crewmembers. These data were recently reanalyzed and the preparation of a manuscript on *Changes in Moods States of Submarine Crewmembers during Prolonged Submergence* is expected to begin during 2004.

Military Deployment and Self-Assessed Health Status. The Defense Medical Surveillance System (DMSS) provided data sets for over 30,000 military members who returned from deployments in 2000. DMSS provided person-level data from the: DD Form 2795 Pre-Deployment Health Assessment; DD Form 2796 Post-Deployment Health Assessment; military personnel systems; and, military inpatient and outpatient data reports. Center researchers have completed the initial analyses of these data to look at the association between self-reported health status and health care utilization following deployment. A poster entitled, *Increased Rate of Illness-Related Ambulatory Care Visits After Deployment Among Military Members With Low Self-Rated Post-Deployment Health*, was presented at the USU Faculty Senate Research Day in May of 2003. There were 114,265 illness-related ambulatory care visits (median of 3 visits per person, range 0-132) over a period of 36,883 person-years of observation. The survival analysis found that low self-rated health upon return from deployment is associated with increased health care utilization. Military members returning from deployment with *fair/poor* self-rated health had 5.3 visits per person per year; *good health* self-rated health had 3.9 visits per person per year; and, *excellent* self-rated health had 2.9 visits per person per year. Additional analyses and preparation of a manuscript are in progress.

One MPH graduate education student conducted a survival analysis of the post-deployment hospitalization experience of deployers. He found a significant difference in the post-deployment hospitalization experience between those who self-rated their health as *excellent* or *very good* versus *good/fair/poor* when the observation period was extended beyond the immediate 6-month post-deployment period. In a stratified analysis, the difference was present for men, but not for women. The student presented a poster entitled, *Is Self-Assessment of General Health Condition Post-Deployment Related to Post-Deployment Hospitalization*, at the USU Faculty Senate Research Day in May of 2003.

As part of the project on military deployment and self-assessed health status, two Center researchers examined associations between self-reported health status and history of deployment using responses from 17,264 military members who completed anonymous questionnaires for the 1998 Department of Defense Survey of Health Related Behaviors among Military Personnel. In the initial report on this work, associations were noted between a history of deployment and several self-reported measures of health; following the completion of analytic work, a manuscript will be prepared for publication.

Center for International Health.

Mission. A Memorandum of Understanding was signed between the Air Force Office of the Surgeon General and USU during October/November of 2001, to design, test, and implement an educational and academic curriculum for the International Health Specialist Program. The Air Force Surgeon General established a new competency focus for selected uniformed health care providers entitled, *International Health Specialists (IHS)*, in response to operational requirements. The International Health Specialist Program's purpose is to prepare regionally-focused military medical experts who can help prepare uniformed forces for operational contingencies and the global response to medical crises around the world. **Colonel Martha Turner, USAF, Associate Dean, USU Graduate School of Nursing,** served as the Center Director during 2003.

The International Health Specialist Program. The International Health Specialist (IHS) Program was initiated in 1999, under the guidance of **Lieutenant General Paul K. Carlton, Jr., Surgeon General of the Air Force.** Numerous After Action Reports (AARs) indicated that Humanitarian Assistance (HA) and Disaster Response (DR) missions would benefit if members of the Air Force Medical System (AFMS) received additional training. The goal of the IHS Program is to prepare regionally-focused military medical experts who can help prepare uniformed forces for operational contingencies and the global response to medical crises during war and/or peacetime deployment. The AFMS members may be selected for full-time IHS assignments in support of Combatant Commander's Theater Engagement Plans. Individuals selected for the positions will be prepared with short courses and rotations as well as degree programs (i.e., the Master of Public Health (MPH) Degree with a regional, humanitarian assistance, disaster response, or international health focus).

The USU/SOM MPH Program is a 12-month program consisting of 60 quarter credit hours; in addition to the MPH requirements, the IHS students are required to take: International Health I; International Health II; Medical Anthropology; Joint Medical Operations and Humanitarian Assistance; Public Health Issues in Disasters; Historical Perspectives of International Health; and, Introduction to Epidemiology II. Furthermore, IHS students must also select three additional electives from the following courses: Program Planning & Development; Principles and Practice of Tropical Medicine; Malaria Epidemiology and Control; Travel Medicine Practicum; Biostatistics II; and, Deployment Environmental Exposures. IHS graduates are expected to use their acquired quantitative and analytical skills in biostatistics and epidemiology to identify and measure community health needs and to investigate the impact of biological, environmental, and/or behavioral factors in solving public health problems. Each graduate will understand the components, operations, and financing of health delivery services and have the administrative skills to plan, analyze, manage, and improve public health programs for the Uniformed Services. The graduate will also understand the role that the United States military and other organizations and agencies play in addressing global health issues. And, the graduate will be able to apply public health principles toward assessing international health needs and in the planning, conducting, and evaluating of international health-related activities and projects. Four students matriculated into the program during 2002; and, all four graduated in June of 2003; currently, there are four additional IHS students who are projected to graduate in June of 2005.

Staff Activities During 2003. During the past year, Center staff made a site visit to SOUTHCOM in September of 2003, to assess learning opportunities; and, they presented a poster at the Asian-Pacific Military Medical Conference in Thailand. Another staff member co-directed *Military Preventive Medicine Week* for senior medical students during May of 2003. Other activities included: attendance at the 6th Annual Force Protection Conference held in Albuquerque, New Mexico, on August 11-17, 2003; presenting a sanitation and hygiene lecture to 170 senior students, in preparation for medical officer duties, during Military Preventive Medicine Week; presenting a food sanitation in the field lecture to 132 students and assisting in the night Land Navigation Course during *Operation Kerkesner*; and, performing mosquito surveillance and control in the field during *Operation Kerkesner*, to include monitoring for mosquito larva and reducing mosquito populations in a field expedient manner.

The Center for Oral Health Studies.

Mission. The Center for Oral Health Studies provides oral health care services information and dental public health education to the DoD, the TriService Dental Corps Chiefs, and other interested organizations. The Center gathers, synthesizes, and distributes management information needed to develop oral health care policies and programs necessary to optimize the oral health of DoD beneficiaries and the dental readiness of service members. **Andrew K. York, DMD, MPH, CAPT, DC, USN, served as the Director of the Center for Oral Health Studies during 2003.** CAPT York is licensed to practice dentistry in both Kentucky and Virginia. He holds *Diplomate* status with the American Board of Dental Public Health; and, he is a Member of the American Dental Association and the American Association of Public Health Dentistry.

Center Activities. The Center's staff played key roles in corporate military dentistry, during 2003. ***As the primary source of military dentistry health services information, the Center's staff are members of many Integrated Product Teams (IPTs) associated with military dentistry,*** to include the following: the TRICARE Management Activity (TMA) IPT for Redefining the Military Dental Classification System; the TMA Dental Health Standard (65% Health) IPT; the TMA MHS Survey Workgroup; the TMA Reserve Dental Readiness IPT; the Navy Bureau of Medicine and Surgery (BUMED) Population Health IPT; and, the Base Realignment and Assessment Committee (BRAC) Medical/Dental Research Development and Acquisition Sub-Work Group.

During the past year, the Center completed the major tasking of the TRICARE Management Activity (TMA) to conduct a study of the oral health status and treatment needs of military Reservists mobilized for *Operation Enduring Freedom/Noble Eagle*. Center staff also completed a second TMA tasking to evaluate the level of enrollment and the effectiveness of the TRICARE Dental Program (TDP) among mobilized Reservists; they ***developed and distributed to TMA and all military dental commands information necessary to assess the impact on military dentistry for meeting the dental care requirements of the thousands of Reservists currently being mobilized.***

The Center's ***TMA-funded Dental Patient Satisfaction Program continued to be the military's sole source for assessing the satisfaction of patients with military dental care.*** The Center received, compiled, and analyzed over 12,000 patient satisfaction survey forms each month, from military dental clinics worldwide. The staff developed and disseminated over 250 individual dental clinic reports each fiscal quarter. These quarterly reports allowed the clinic directors to identify specific areas for improvement leading to better service and patient satisfaction across the system. The DoD Dental Patient Satisfaction Program continues to be an integral part of the overall Military Health System (MHS) performance assessment.

During 2003, the Center completed data collection for the ***2003 TriService Oral Health Assessment***, funded by the Army and Air Force Dental Corps. This involved travel to 16 randomly selected Army and Air Force dental clinics world-wide. ***This data will serve as the sole source for Service level assessment of dental treatment needs for the Army and Air Force and is a follow-up to the Center's 1994 TriService Comprehensive Oral Health Survey.*** Data analysis is underway.

The Navy's Dental Common Access System (DENCAS) is a web-based system utilized to capture dental treatment needs on a real-time basis. ***The Center was tasked and funded by the Navy Dental Corps to assess the validity of data in its DENCAS System.*** Center personnel traveled to a sample of eight Navy dental clinics and four Navy commands to capture the level of agreement and document discrepancies between *paper patient dental records* and the DENCAS System. Data collection was completed and analysis is underway.

The Air Force Dental Corps tasked the Center to assess ***the oral health status and treatment needs of Air Force National Guard personnel mobilized to active service.*** Copies of individual inprocessing examinations were mailed to the Center; and, the computer entry of treatment needs information is ongoing.

During 2003, the Center provided data, analysis and report preparation support to three dentists who were completing their MPH special research projects. The Center staff continued to mentor two MPH graduates during their Dental Public Health Residency at the National Institute for Dental and Craniofacial Research.

Finally, the Center was tasked by the Dental Advisory Board for the Pentagon Dental Clinic and the Chief of the Navy Dental Corps to assess the treatment requirements of patients supported by the clinic. The Center collected treatment needs data from a random sample of patient dental records at the Pentagon Dental Clinic and ***developed a detailed report, which was critical to the development of proper staffing and budgeting at the Pentagon Dental Clinic.***

The Center for Population Health.

Mission. The Center for Population Health is an integral part of the research, service, and educational activities of the PMB Division of Health Services Administration. The Center's functions are carried out through two primary activities: a focus on patient safety; and, a focus on clinical performance analysis and improvement. The Center also develops innovative educational curricula and provides training to Federal health care executives and managers to create, manage, and improve high quality health systems. Through these activities, the Center provides expertise, experience, and insight for the assessment of large health care databases to determine trends in population health and care delivery and the efficiency and effectiveness of care delivery processes. This performance analysis includes the linkage of practice patterns and support structure and policy to health outcomes. The analysis also focuses on the major issue of patient safety in a health care system and its processes and the identification of appropriate actions to limit risk and to improve the system. Both primary activities lead to the development of educational material for medical students, active practitioners, and policy makers to improve the safety and effectiveness of the Federal Health Care Systems. The Center for Population Health is currently sponsored by projects with the Agency for Healthcare Quality and Research, California State, the United States Military Cancer Institute, and the Health Resources and Services Administration (HRSA). **Galen Barbour, M.D., FACP, FACHE, Professor, USU SOM Department of Preventive Medicine and Biometrics, served as the Director for the Center during 2003.** Doctor Barbour is a Member of the following organizations: the American Federation for Clinical Research; (Member and Fellow of) the American College of Physicians; the American Heart Association; the American Society of Nephrology; the American Society for Artificial Internal Organs; the Society of the Sigma Xi; Alpha Omega Alpha; the American Institute of Nutrition; the American Society for Clinical Nutrition; and the American College of Healthcare Executives.

Center Activities. The Center is specifically *designed to enable Federal health care providers and administrators to access comprehensive, integrated, population-based performance information to facilitate quality improvement and cost reduction and demonstrate the value and power of the combined Federal health care systems to the American Public.* The following was included in the Center's summary report for 2002-2003:

Education and Training.

The Medical Executive Skills Program. The Medical Executive Skills Program (*MedExec*) was designed in response to a Congressional mandate that current and prospective DoD health care leaders receive training in health care management and administration. Both face-to-face and distance learning are included in the program. In 2003, a new case study was developed for the in-class portion of the program based on recent customer service issues in the Military Health System (MHS).

Integrating Clinical Managerial Decisions to Improve Population Health. This five-day, in-class portion of the *MedExec* Program is held five times each year throughout the continental United States

and the Atlantic and Pacific TRICARE Regions. To date, 34 sessions have been held in the TRICARE Regions; and, approximately 950 senior officers have been trained for the Military Health System.

Distance Learning Program. The Distance Learning Program is an integral part of the *MedExec* Program. Several of the previous presentations have been developed into distance/distributed learning formats and are presented prior to the formal on-site class via web-based mechanisms. Learning accomplishments of the presentations are measured and reflected in the changes seen from a pre-test and post-test analysis using qualitative questions derived from the material in the on-site and web-based presentations. Implementation and evaluation of the MedXellence Distance Learning Program was expanded to include 10 to 14 on-line modules. As in the past, much of the current information presented in class will be migrated to CML format. The web portal has been upgraded in appearance and content to support the Center's educational efforts; and, plans to expand the web portal to include an on-line library and continuing education links are on-going.

Master of Public Health. During 2003, the Center for Population Health developed an integrated case study for MPH students in the HSA track. This case study is used in all HSA courses so that students can apply what they have learned in a more realistic way. The Center's staff have also developed three new courses in the HSA MPH track: *Health Care Performance Improvement*; *Fundamentals of United States Healthcare Policy*; and, *Human Resources for Healthcare Executives*.

Application of the Tools of Clinical Epidemiology in Health Services Management. The Center has signed a Data Use Agreement with the Center for Medicare and Medicaid (CMS) as part of its goal to access all Federal health care databases in order to support the Federal agencies in the measurement of cost and quality of care in the Federal sector of American medicine. The Center's staff have also developed data extraction capabilities with the MHS and continue to pursue access to the Veterans Healthcare Administration database in order to conduct large database studies.

Research Activities.

California Active Duty Tobacco Use Study. A survey designed to study tobacco use has been mailed to over 16,000 active duty military personnel stationed in California. Initial data is expected in March of 2004; and, the final report will be completed in August of 2004.

Bioterrorism Preparedness. The Center for Population Health received funding in the amount of \$2 million from the Health Resources and Services Administration to study bioterrorism preparedness in the United States health care infrastructure.

Cancer Epidemiology. Preliminary results of the national epidemiological study of cancer for the United States Military Cancer Institute have been obtained and are driving re-extraction of some data elements and new analysis activities.

Chronic Disease. Final data analysis on three chronic disease cohorts from the Medicare database has been completed; a manuscript is in preparation; and, data analysis is proceeding for three surgical procedures.

Student Research. Center personnel are mentoring or advising three MPH student projects; each of these projects involves addressing the MHS database through existing Center data use agreements within the MHS. All of these projects open a viable avenue for future research.

Research Collaboration. Center personnel have collaborated with Doctor Richard Atkinson of the Medlantic Research Foundation in submitting two proposals for Federal funding of a study of obesity causation linked to adenovirus infection. Center personnel are also sponsoring Doctor Atkinson's approach to the Department of Defense Serum Repository for studies to examine the prevalence and relationship of adenovirus infection and obesity in military personnel.

The USU School of Medicine Department of Military and Emergency Medicine and the Casualty Care Research Center.

The CCRC Mission is to serve as a unique national resource by providing quality research, education, and expertise in the delivery of good medicine in bad places.

- Mission Statement Approved by the President, USU, 1995.

Establishment and Mission. The Casualty Care Research Center (CCRC) was established in July of 1989, under the USU SOM Department of Military and Emergency Medicine as a center of excellence for injury control and casualty care research.

In keeping with the overall mission of USU, the scope of the CCRC activities includes the following: 1) conducting research and investigations on issues relating to injury control, casualty care, and operational and disaster medicine; 2) providing a disciplined, educational, research experience in combat casualty care, injury epidemiology, trauma management, and related areas to medical students, graduate physicians, and other uniformed medical personnel; 3) serving as a repository of resources and information relating to injury control, injury epidemiology, and operational medicine for the Uniformed Services; and, 5) providing research, resource and educational support, technical assistance, and other community service to USU, the Uniformed Services, and other Federal, State, and local elements. The Center operates on extramural funding; it employs eight full-time personnel and is supplemented by ten part-time civilian volunteers and military officers loaned on an intermittent basis by their parent commands. Personnel within the USU Department of Military and Emergency Medicine participate in various activities of the CCRC based on their professional interests and as their teaching and clinical responsibilities permit. The Center's efforts fall into three categories: research, training, and consultative/operational support. **Mr. Joshua Vayer, Research Assistant Professor, USU SOM Department of Military and Emergency Medicine, serves as the Director for the Center.**

Core Military Competency. The location of the CCRC within the multi-Service environment of USU, with its emphasis on education and development, scientific studies, research, and on-going clinical and operational practice, is critical to the development and sustainment of the CCRC's ability to maintain its core competency - *the capability to provide military-unique, medical expertise and experience required by both uniformed and civilian emergency/health care responders to weapons of mass destruction (WMD)-related and other national security contingencies*. Only DoD has a self-renewing source of physicians and other medical personnel with interest and experience in these areas. USU, through its students in the School of Medicine and the Graduate Education Programs, and its career-focused faculty and staff, plays a vital role for the DoD in the renewal process of militarily-focused and experienced health care providers. The University ensures continuity and leadership for the MHS; and, the CCRC's core competency plays an essential role in that equation.

First responders suffer from shifting Federal priorities, bureaucratic rivalries, and poorly designed training programs.

- Government Executive, Emergency Assistance, November 2002, pages 18-27.

Contributions to Homeland Security - The Counter Narcotics and Terrorism Operational Medical Support Program. Since 1989, the CCRC has successfully served as a bridge between DoD and Civilian Emergency Responders for the coordination and sharing of critical, military-unique medical knowledge, technology, and expertise. Initially, this CCRC Program was a cooperative effort between USU, the Department of Defense Office of Drug Enforcement Policy and Support, the Henry M. Jackson Foundation for the Advancement of Military Medicine, and the Department of Interior, United States Park Police Special Forces Branch. From 1990 through 2001, the CCRC Program was continuously funded by the Office of Drug Enforcement Policy and Support, which reported through the Assistant Secretary of Defense for Special Operations/Low Intensity Conflict. Currently, the Program has been supported through special congressional funding for Chemical/Biological/Radiation/Nuclear/Explosive (CBRNE) Training. The Program's policies are governed by a Board of Directors representing military medicine, law enforcement, and pre-hospital care communities.

The Counter Narcotics and Terrorism Operational Medical Support Program focus is on the crisis management response to: *weapons of mass destruction (WMD); counter terrorism; protective operations; hostage rescue; explosive ordnance disposal; maritime operations; civil disorder; and, major national security events.* To date, the CCRC Program has trained over 6,000 civilian emergency personnel from 750 agencies through collaborative support agreements with law enforcement organizations from all 50 States, the District of Columbia, Guam, Puerto Rico, the United States Virgin Islands, England, Denmark, and Canada. Forty local, State, and Federal law enforcement agencies mandate this CCRC certification-based training as a condition of employment for their SWAT medics. It teaches skills that reduce the risk of death or serious injury during counter terrorist operations, drug raids, hostage situations, and other high risk operations for DoD personnel and, on a reimbursable basis, for personnel from other Federal, State, and local agencies. In October of 2002, ***the Secretary of Defense recognized the exemplary response by CCRC to the terrorist attacks on September 11th, when he awarded the Exceptional Civilian Service Award and the Secretary of Defense Meritorious Civilian Service Award to several CCRC personnel.*** The superb support of the CCRC was also recognized on February 28, 2003, when ***the Honorable Gail Norton, Secretary of the Interior, presented a Unit Citation Award to the CCRC*** in recognition of support provided to the United States Park Police on September 11, 2001.

The Program provides *military-unique, national standard, assessment-driven curricula; certification; and, a quality assessment process* that exist nowhere else. Its unique Special Operations Injury Epidemiology Database, the only database of its kind, ensures both effectiveness and relevance during the generation of assessment-driven curricula; and, it provides information and data for research on injuries incurred during the crisis management of domestic contingency operations. *The data derived through this CCRC Program is utilized by DoD to explore the epidemiology of injury and the impact of various medical interventions.*

The Counter Narcotics and Terrorism Operational Medical Support Program has received the endorsement of, and/or continuing medical education credit from: The National Tactical Officers Association; the National Association of Emergency Medical Technicians; and, the Continuing Education Coordinating Board for Emergency Medical Service. *The CCRC's maturing relationship with the law enforcement community as a principal consultant for medical support for Federal law enforcement special operations in the United States has resulted in the transfer of valuable knowledge, experience, and technology for military medical application.* This information is used to guide the educational components of the CCRC Programs and to explore similarities and differences between the experiences of the civilian law enforcement communities and the military special operations forces; thus, it contributes to medical readiness. *For example, during 1996, these collaborative efforts led to a significant change/enhancement in the training programs for the Navy SEALs.* The CCRC has received multiple testimonials from faculty and students who attribute their success in planning medical support for the deployment of military units in the field directly to knowledge gained at the CCRC. Medical readiness and mission support was also provided by CCRC following the bombing of the United States Embassies in East Africa, to include preventive medicine, field sanitation and hygiene, medical intelligence, acute care, and clinical forensic medicine. Critical medical coverage of security forces and protectees, following 9/11, was provided by CCRC for several weeks, which supported efforts for the continuity of government.

As the CCRC's largest training program, the Counter Narcotics and Terrorism Operational Medical Support Program, offers the following medical/evidence-based courses: *EMT-Tactical; the Advanced School; the Commander's Course; the Medical Director's Course; and, the Instructor Development School.* These CCRC courses receive maximum attendance. For example, the Medical Director's Course, presented at the 2002 Annual Meeting of the National Association of EMS Physicians, received unprecedented attendance. Participants in these courses also include medical students, graduate physicians, special operations medics from all of the Services, and selected Federal law enforcement medics. In addition, the CCRC can provide training with an array of hand-held PC-based knowledge management tools and guides, such as the *ChemBio Toolkit*, currently being adapted for the Navy and the National Institutes of Justice, which guides a commander through the steps of handling a suspicious mailroom package or an abandoned briefcase and provides a probability based threat assessment and agent identification. ***The location of this CCRC Program within the University ensures academic oversight and credibility for the Congressionally mandated collaboration between DoD and the civilian emergency personnel community.***

WMD Scientific Training Programs. The CCRC provides a family of seven WMD medical educational programs to meet the needs of a variety of communities. These include *Responding to WMD for Health Care Facilities*, *Responding to WMD for Health Care Providers*, and *WMD Awareness: What Everyone Needs to Know*. These programs have been highly acclaimed because of their effectiveness and efficiency; and, they are being reviewed as a model for Military Treatment Facility (MTF)-based training. The CCRC continues to receive requests from health care facilities and their staffs for this training. In 2003, the CCRC, at the request of the Commander, Wright-Patterson Air Force Base, conducted two *WMD for Military Medical Treatment Facilities* courses for military and civilian staff at the Wright-Patterson Air Force Base Medical Center in Dayton, Ohio. The program was well attended and received much praise from the attendees.

The Wound Data and Munitions Effectiveness Team (Vietnam) Database (WDMET) - A Unique Resource. The Wound Data and Munitions Effectiveness Team (Vietnam) database (WDMET) is maintained by the CCRC. It contains information on the tactical engagement, weapons employed, resulting injuries, and treatment in the pre-hospital and hospital environments on approximately 8,000 combat casualties. It is the only collection of its kind in the world. Photographs, medical records, X-rays, recovered bullets and fragments make this a unique resource, which has been studied extensively, resulting in numerous scholarly publications since the establishment of the Center. Most recently, the WDMET data has been used to support the *Persistence in Combat Project*, which is sponsored by the Defense Advanced Research Project Agency (DARPA).

CCRC Mission Support Center and Operational Medical Support. In agreement with the philosophy that teachers and scholars must maintain an active practice in their areas of expertise to ensure competency, the Operational Medical Support Programs of the CCRC provide consultation and support to multiple organizations, including the White House Medical Unit, the Federal law enforcement community, and numerous national security contingencies. These activities are carried out under appropriate Memoranda of Understanding. On the average, the CCRC Mission Support Center responds to at least one request for support each day; it is staffed by uniquely trained personnel who provide medical informatics, consultation, planning, and threat assessment support on a *round-the-clock* basis. These support-related activities serve as a suitable vehicle for USU faculty, both billeted and off-site, to develop and maintain their expertise in operational medicine. *Participation in actual missions lends important credibility to teaching and research and provides a living laboratory where concepts, techniques, and technology can be evaluated.* The Secretary of Defense has commended the CCRC for its contingency support for the Republican National Convention and the Presidential Inaugural and the direct service support to the Departments of State, Treasury, Interior, and Justice. Based upon the similarities between military medicine and selected types of civilian emergency medical support, lessons learned can be applied from one to the other. The increasing frequency of military operations other than war, including responses to terrorist activities, makes the law enforcement special operations experience critically relevant to military medicine.

CCRC Emergency Medicine Resident Rotation. The CCRC's Emergency Medicine Resident Rotation in Operational Medicine Course, initiated in 1992, is a four-week elective for military emergency medicine residents. Ninety-two active duty emergency medicine residents, six active duty staff physicians, and three physician assistants have completed the course. It consists of successful performance in the one-week Counter Narcotics and Terrorism Operational Medical Support (CONTOMS) Program EMT-Tactical School, when it is available, followed by temporary duty at the CCRC. While assigned to the CCRC, the emergency medicine residents deploy on actual support missions, complete short research projects, and generate *white papers* on topics such as antibiotic selection, malaria prophylaxis in high risk special operations, and field laboratory diagnostics for chemical, biological, and radiological incidents. In 1998, the three Surgeons General suggested that the elective be made a required rotation for all military emergency medicine residents. Residents from the Joint Service (Army/Air Force) Emergency Medicine Residency Program in San Antonio, Texas, began completing the elective as a requirement for their residency training. In addition to the military residents, CCRC has received requests for training from numerous civilian programs, including George Washington University, Case Western Reserve University, and the Genesys Regional Medical Health Systems.

Deployments for Training Program. The CCRC Deployments for Training (DFT) Program provides an opportunity for military graduate physicians to develop operational competence prior to actual combat conditions through collaborations in counterterrorism and national security operations with the law enforcement community. This program provides students with a real world operational experience in a permissive environment that cannot be duplicated outside of combat. Special Forces' experience in Iraq has demonstrated the value of the DFT Program in bridging the gap between classroom and operational readiness.

CCRC Military Medical Field Studies Rotation. The Military Medical Field Studies Rotation at the CCRC accommodates up to twenty first-year medical students with prior service for the required military experience between the first and second years of medical school; if required by the Services, this number could be increased. Up to six, fourth-year medical students complete an elective rotation in operational medicine research at the CCRC each year; again, the number of students could be increased if required by the Services. The operational experiences of the CCRC Medical Support Teams are integrated throughout the medical school curriculum as tangible demonstrations of the medical science being taught. ***For example, a large part of the USU SOM curriculum on blast injury uses the first-hand experiences of the CCRC faculty acquired during their response to the embassy bombings in East Africa.***

During 2003, 6 students, between their first and second year of medical school, selected an area of interest and worked with CCRC faculty members on individualized courses of research and study. The students were also divided into groups; each group was responsible for completing a research effort and for a presentation of findings. Students attended one or more of the following CCRC training opportunities: *the Emergency Medical Technician Tactical (EMT-T) Course*; *the Emergency Medical Technician - Tactical Advanced Course*; or, *the Weapons of Mass Destruction (WMD) Training Program*.

USU School of Medicine Department of Military and Emergency Medicine and the Center for Disaster and Humanitarian Assistance Medicine.

Establishment. The Center for Disaster and Humanitarian Assistance Medicine (CDHAM) was established in September of 1998, under the USU SOM Department of Military and Emergency Medicine to advance the understanding and global delivery of disaster medical care and humanitarian assistance. The Center ensures specialized expertise, consultation, training, education, and research for medical support activities that impact homeland defense, terrorism and disaster response, and humanitarian assistance. Personnel within the USU Department of Military and Emergency Medicine participate in various activities of the CDHAM based on their professional interests and as their teaching and clinical responsibilities permit. **Craig H. Llewellyn, M.D., Professor and Former Chair, USU SOM Department of Military and Emergency Medicine, serves as the Director for the Center.**

Mission. The mission of CDHAM is to advance the understanding and delivery of disaster medical care and humanitarian assistance on a worldwide basis. Uniquely positioned as an academic center within the USU, the CDHAM has served as a focal point in the Military Health System to: 1) develop relationships between various governmental, non-governmental, and private volunteer organizations; 2) assist in the critical management of relief efforts in the medical response to weapons of mass destruction, terrorism, natural disasters, and humanitarian assistance contingencies through new developments in the areas of disaster and humanitarian assistance medicine (such as ultrasound imaging training for disaster response or the use of PDA/handheld computer software platforms for disaster needs and assessment); and, 3) augment the training of military medical officers through specialized expertise, consultation, and training in the field of Telemedicine and medical informatics in relation to the austere environment, education, and research capabilities.

Center Activities. The CDHAM uses training, technology, and best management practices to improve military medical capabilities and readiness during disaster and humanitarian contingencies, especially through collaboration with the inter-agency process, the international medical community, and the host nation medical infrastructure and beneficiary populations. ***The CDHAM works closely with the Unified Combatant Commands to meet its primary mission.*** Such efforts generally involve direct liaison with other DoD humanitarian assistance centers to include: the Center of Excellence (COE) for Disaster Management and Humanitarian Assistance under the United States Pacific Command (USPACOM) located in Honolulu, Hawaii; and, the Center for Disaster Management and Humanitarian Assistance (CDMHA) under the United States Southern Command (USSOUTHCOM), located in Miami, Florida.

In conducting studies and operations concerning local and global relief efforts, the CDHAM also works to expand relationships with other United States government agencies such as the Office of Foreign Disaster Assistance (OFDA) and the United States Agency for International Development (USAID), as well as international organizations such as the Pan American Health Organization (PAHO) and the World Health Organization (WHO). During 2003, CDHAM was actively engaged in various studies supported by the Department of Defense (DoD), the Unified Combatant Commanders, and other Federal agencies. A summary of the CDHAM's activities during 2003 follows.

Research and Operations.

Measures of Effectiveness. The DoD has the World's finest deployable medical system, and as such, it is routinely engaged in providing international medical humanitarian assistance. Scenarios in which military personnel provide medical humanitarian assistance range from deliberately planned theater engagement activities, to contingency operations, and complex human emergencies and military operations other than war. *The CDHAM produced a series of reports examining the training value of medical humanitarian assistance projects and their effectiveness for beneficiaries in 2002.* To ensure greatest exposure to military planners and decision makers, the nine reports from the study were published in booklet form during 2003, and distributed widely among the Department of Defense, the Unified Combatant Commands, and to various offices concerned with humanitarian assistance and disaster response planning and execution. The nine reports were:

Report 02-01. *Overview of Overseas Humanitarian Assistance, Humanitarian and Civic Assistance, and Excess Property Programs;*

Report 02-02. *Humanitarian and Civic Assistance Projects and Military Training;*

Report 02-03. *Measuring the Effectiveness of Department of Defense Humanitarian Assistance;*

Report 02-04. *United States Participants Perspectives on Military Medical Humanitarian Assistance;*

Report 02-05. *Host Nation Participants Perspectives on Military Medical Humanitarian Assistance;*

Report 02-06. *Information Management for More Effective Humanitarian Assistance Projects and Programs;*

Report 02-07. *Measuring the Effectiveness of Humanitarian Assistance Other than Department of Defense Providers;*

Report 02-08. *Humanitarian Service: Recruitment and Retention Effects Among Uniformed Services Medical Personnel; and,*

Report 02-09. *Humanitarian Assistance Bibliography: With some Annotations, After Action Reports and Web Sites of Interest.*

For greater visibility, two additional formats were also provided: 1) a CD-ROM was developed containing a description of the CDHAM's mission and activities that had hot-links to all nine reports, available in *Adobe Acrobat*. ***The CD-ROM was distributed as an enclosure to the distribution list of DoD, Uniformed Combatant Commands, and offices concerned with humanitarian assistance and***

disaster response planning and execution; it was also mailed out to any requesting activity, agency, or command interested in obtaining additional information on this topic. Links to the *Adobe Acrobat* report files are also provided on the World-Wide-Web through the CDHAM's homepage at <www.cdham.org>; and, 2) in December of 2003, a peer-reviewed version of the summary report entitled, *Overview of Overseas Humanitarian, Disaster and Civic Aid Programs*, was also published in *Military Medicine*, 168, 12:975-980, 2003.

Rapid Assessment. Efficient means for assessing the effects of a disaster event are essential for the direction of coordinated relief efforts. As previously reported, the CDHAM completed a study entitled, *An Analysis of the Involvement of United States Department of Defense Personnel in Rapid Assessment Surveys Following Natural and Man-Made Disasters*. The rapid assessment study was made part of the distribution effort identified above for the measures of effectiveness study, and was further provided as an *Adobe Acrobat* file on CD-ROM and via the World-Wide-Web on the CDHAM home page.

Gorgas Laboratory. CDHAM continues to collaborate with the Department of Defense Global Emerging Infections System (DoD-GEIS) co-sponsorship of a SOUTHCOM-funded initiative dealing with the Public Health Laboratory Information System (PHLIS), a hierarchical public health laboratory surveillance network for seven Central American countries and the Dominican Republic. Key partners in this endeavor have included the CDHAM, the Pan American Health Organization (PAHO), and the Pan American Health and Education Foundation. After a training program introduced approximately 28 ministries of health epidemiologists, laboratories, and informatics specialists to the PHLIS software, funds were provided to GEIS and CDHAM for on-going collaborative efforts.

Support to Unified Combatant Commanders: USSOUTHCOM, USNORTHCOM and USCENTCOM. The CDHAM maintains close working relationships with three of the five unified combatant commands, which have responsibilities for those parts of the globe that are proximal to USU. *CDHAM continues to work under a Memorandum of Understanding with USCENTCOM to develop an effective humanitarian de-mining organization that will assess host nation treatment facilities and capabilities in mine-populated areas.* Following completion of a contract to provide training and humanitarian support to Mexico, formerly under the United States Joint Forces Command (USJFCOM), the CDHAM initiated contacts with the newly established USNORTHCOM and the Command Surgeon's Office, to continue to provide coordination on projects that will enhance *military to military* cooperation with Mexico. The Director of CDHAM was invited to participate in two conferences hosted by USNORTHCOM (see Other Activities and Relationships below). Finally, the CDHAM is involved in several collaborative activities with USSOUTHCOM related to consequence management, as well as in providing assistance to the Command Surgeon to support analyses of several Caribbean and Latin American countries as part of the Department of Defense HIV/AIDS Prevention Program (DHAPP); a program managed by the Navy Health Research Center in San Diego, California. The DHAPP has been supporting *military to military* interventions in other unified combatant command AORs since 2000 (discussed in CDHAM Consultative Support, below).

Telemedicine Operations and Technology Cell.

Operational Course of Instruction in Telemedicine. The CDHAM designed and operates a demonstration course intended for personnel to gain a broader overview of the use of telemedicine in austere environments, which would prove useful to users of satellite communications in deployed settings. The training is based on a course that has been in existence since 1995; it consists of six hours of lectures, demonstrations, and small *hands-on* practical sessions. The demonstration course provides closer insight into the clinical and technical skills required for the successful practice of telemedicine. The CDHAM faculty is comprised of military and civilian medical and technical personnel who have extensive experience in teaching and practicing telemedicine.

Disciplines within the medical sciences currently using telemedicine technology such as Radiology, Pathology, Psychiatry, Dermatology, and Cardiology are briefly discussed. Next, other uses for deployable telemedicine systems are outlined, to include describing applications of the PCOST (Portable, Commercial, Open-Standards Telemedicine) System for use in Disaster Response and Management and the integration of Remote Local Area Networks (RLANS) for data collection and management. The session then leads into an overview of equipment, which is followed by a basic *Spectrum of Telemedicine* session that encompasses all of the various communications modalities used and how they relate to the equipment on display.

The usage and integration of medical devices (Scopes-Sonosite) lesson follows, along with a demonstration of dental, dermatological, and otoscopies. At the conclusion of the scope sets demonstration, an introduction and use of the Sonosite portable ultrasound in conjunction with the Gaumard is presented. The demonstrations are intended to encourage audience interaction with the instructors and equipment in various formats (i.e., placing satellite calls, conducting video teleconferencing communication, and experimentation with the scope sets).

Training.

CDHAM Director - An Invitational Speaker at Multiple Course Offerings in 2003. The Director, CDHAM, presented several lectures on bioterrorism and consequence management at a *Homeland Security for Medical Executives Course* sponsored by the Defense Medical Readiness Training Institute (DMRTI), in San Antonio, Texas. The Director also was a sponsored presenter for the *38th Parallel Medical Society Conference* held in Seoul, South Korea, which was attended by military and civilian representatives of the United States and the Republic of Korea Armed Forces. And, the CDHAM Director lectured at a *United States Public Health Service-Hosted Combined Humanitarian Assistance Response Training (CHART) Course* held in Rockville, Maryland.

Strategic Medical Planning and Contingency Course. CDHAM provides information and training lectures for the Navy's *Strategic Medical Planning and Contingency Course* (SMPCC). This

CDHAM support expands the base of knowledge among service personnel engaged in operational planning concerning the role of the military in humanitarian assistance and disaster response; it also prepares personnel in the decision-making process regarding methodology in disaster scenarios.

NGO Briefing to USU Fourth-Year Medical Students. The CDHAM regularly participates in the USU fourth-year medical student training curriculum by providing a lecture on the topic of NGOs and their relationship to the United States military, based upon the CDHAM publication, *Guide to NGOs*.

USU Graduate School of Nursing Operational Readiness Course. A presentation similar to the above-described SMRCC lecture was presented during the USU Graduate School of Nursing (GSN) *Operational Readiness Course*, to prepare the GSN participants for decision-making during humanitarian assistance and disaster relief operations, as well as to encourage active military participation in future missions.

Master of Public Health Program, USU SOM Department of Preventive Medicine and Biometrics. The Director of CDHAM participated as an instructor/lecturer in the *International Health Course*, which is part of the Master of Public Health (MPH) Program in the USU SOM Department of Preventive Medicine and Biometrics.

Man-Made Disaster Training for the Mexican Military. CDHAM completed the execution of a contract supporting the United States Joint Forces Command (USJFCOM) theater engagement plan in Mexico during 2002. In 2003, a report was finalized concerning the principal tasks, which included: 1) the facilitation of a bilateral disaster medical training conference; and, 2) the humanitarian donation of property that was excess to the needs of the Department of Defense. Total attendance at the training presented in support of the contract included 287 civilian and military personnel. Bilingual proceedings and training materials, developed as part of the support contract, are available as training resources via CDHAM's home page on the World-Wide-Web.

Military Medical Humanitarian Assistance Courses. Of ten *Military Medical Humanitarian Assistance Courses (MMHAC)* initially developed by the CDHAM, six are in final preparation for conversion into web-based programs. Much of the course content is being updated from original lesson plans developed during 2001-2002. While the definitions and the military's view of complex emergencies have hardly changed concerning the basic dialog, the execution and response by the DoD has continued to evolve. The opening lectures of many of the courses of instruction (i.e., *Introduction to Humanitarian Assistance*, etc.) are being reevaluated either in electronic or hard copy form.

The *MMHAC* originally consisted of 13 courses: 1) Medical/Clinical Psychology; 2) Psychiatry; 3) Internal Medicine; 4) Dermatology; 5) Nurse Practitioner (combined with Nurse Anesthesia); 6) Emergency Medicine; 7) Pediatrics; 8) Obstetrics and Gynecology; 9) Medical Informatics; 10) Family Medicine; 11) Orthopedic Surgery; 12) Veterinary Public Health; and, 13) Physical Medicine

Rehabilitation Services. Some of the original 13 courses were never developed or conducted; and, several of the courses continue to be prepared for evaluation either in electronic or hard copy form.

From available course materials, six courses were evaluated for web-based conversion and ranked using the following prerequisites:

- Immediate availability for HTML conversion for web presentation;
- Availability of materials, including electronic copies of reference materials and examinations;
- Current application to disaster management; and,
- Organization and structure of the course material.

During 2004, beta test versions of the six courses will be finalized and just-in-time instructional curricula will be produced for delivery via the CDHAM home page on the World-Wide-Web.

Combined Humanitarian Assistance Response Training Course. In prior years, the CDHAM has served as a host site for the *Combined Humanitarian Assistance Response Training (CHART) Course*. Additionally, CDHAM sponsored an organizational meeting on behalf of the Office of the Assistant Secretary of Defense, Special Operations Low Intensity Conflict, to update the day-four medical agenda topics for the CHART Course, which is managed in Hawaii by the Center of Excellence (COE) in Disaster Management and Humanitarian Assistance. Whereas, the CDHAM is currently focusing its humanitarian assistance and disaster response training efforts towards Military Medical Humanitarian Assistance Courses, members of the CDHAM staff continue to serve as faculty instructors for CHART Courses that are held in the area. In February of 2003, the CDHAM Director lectured in a United States Public Health Service sponsored CHART Course held in Rockville, Maryland.

Kerkesner and Bushmaster. The CDHAM staff continues to support the education of USU medical students during the first-year of medical school (*Kerkesner*) and fourth-year (*Bushmaster*) operational training courses and exercises. Live demonstrations of telemedicine equipment and medical informatics in relation to the austere environment are presented under actual field operating conditions.

Public Service Recognition Week. The CDHAM provides an interactive display on Telemedicine for the general public during the annual Public Service Recognition Week hosted by DoD on the Mall in Washington, D.C.

CDHAM Consultative Support.

The CDHAM provides telephone and on-site consultation for organizations requiring timely expertise in all phases of disaster mitigation. Consultative support with response planning, vulnerability assessment, needs assessment, medical care, and epidemiological surveillance is available.

A Guide to NGOs: A primer about private, voluntary, non-governmental organizations that operate in humanitarian emergencies globally. The CDHAM completed its publication of an instructional reference that deals with non-governmental organizations (NGOs), often referred to as private volunteer organizations (PVOs), non-profits, charities, or aid organizations. Actively involved in humanitarian emergencies globally, the role of NGOs and their interaction with the United States Department of Defense, which has become increasingly involved in humanitarian assistance and disaster relief operations, is described and discussed in CDHAM's 247-page reference publication, *Guide to NGOs*. This publication was designed to orient a wide range of readers with NGOs, their operations, strengths and limitations, budgets, practices, and other characteristics that make them unique across the humanitarian assistance community. ***A timely reference, the Guide to NGOs also includes two annexes dealing with NGOs in Afghanistan and Iraq.*** As with previous CDHAM studies, the publication has also been produced on a CD-ROM as an Adobe Acrobat file, and can be accessed, at no cost, via the CDHAM homepage at <www.cdham.org>.

CDHAM's Homepage and the On-Line Disaster and Humanitarian Assistance Portal. The CDHAM homepage can be accessed on the World Wide Web at <www.cdham.org>. Intended to serve as an information resource, the CDHAM mission and functions are detailed on the site and there are active links that enable the user to access various CDHAM resource materials. One feature on the CDHAM website is the capability to support web-hosting of real-time discussions on timely and relevant topics via the ***Disaster Management Zone (DMZ)***, as well as serving as a vital link to personnel or organizations involved in HA/DR activities anywhere in the world. Another vital link on the CDHAM homepage is the ***On-Line Disaster and Humanitarian Assistance Portal (ODHAP)***, which is a forum to provide rapid access - *two mouse clicks* - to a current listing of over 314 reference sites in 41 different categories dealing with relevant disaster response and humanitarian assistance topics.

Monitoring and Evaluation of the DoD HIV/AIDS Prevention Program in Africa. The CDHAM received funding from the Navy Health Research Center (NHRC) in San Diego, California; NHRC is the executive agent for the DoD HIV/AIDS Prevention Program (DHAPP). The CDHAM is conducting an evaluation and analysis of the DHAPP, which is under NHRC's management oversight, with a focus on the validation of the current business plan and the execution of program dollars since the establishment of the DHAPP in Fiscal Year 2000. The CDHAM will also provide recommendations for program improvement or changes, as appropriate, to assist NHRC in validating the processes and procedures used for program execution for the DoD. At the end of 2003, three site visits were made to NHRC to begin the data collection; the bulk of the contract work should be completed during 2004.

Other Activities and Relationships.

Humanitarian Training Program for the San Antonio Military Pediatric Center, Joint Pediatric Residency Program, Honduras, and Electronic Health and Nutrition Surveillance for Force Health Protection and Humanitarian or Disaster Assistance. A study entitled, ***Nutrition Assessments in Children Living in the Pacific Islands: A Capacity Building Approach***, initiated during 2003, receives administrative and fiscal support from the CDHAM. Another project on nutrition assessments was completed in American Samoa during 2003; and, follow-on assessments are being coordinated for the Republic of the Marshall Islands during 2004. This project is a collaborative effort between the University of Hawaii and the CDHAM at USU. The ***Healthy Living in the Pacific Islands (HLPI) Project***, originally requested support from CDHAM to complete nutrition/health assessments for United States-affiliated Pacific jurisdictions; CDHAM continues to provide technical and financial support to this health initiative, which is a collaborative effort between the University of Hawaii, the Pacific Island Health Departments, and Land Grant Agricultural Universities. The HLPI Project strives to eliminate problems of increased mortality and to decrease the health care costs of treating chronic diseases in the United States-associated Pacific Islands. The Project's focus is on increasing collaboration and community-based strategic planning to better utilize scarce resources and to promote capacity building; the ultimate goal is to ensure the means for longer and healthier lives for those who live in the United States-affiliated Pacific jurisdictions. The CDHAM shares a common concern for improving the health status of the underserved and disadvantaged populations in the Pacific Islands through the provision of quality research and data collection focused on reducing disparity in health. The above described projects focus on children's health and are designed to assist in eliminating health disparities among special racial and ethnic populations. The continued collection of health and nutrition assessment based research data will help to target the most at risk population groups and validate requirements for public health and nutrition interventions.

Support to Honduras and American Somoa. The CDHAM provided funding support for: one rotation of a fourth-year USU medical student, through the USU SOM Military and Emergency Medicine Department, and one part-time CDHAM staff member to participate in the nutrition-based study in Honduras; and, three support personnel from the Walter Reed Army Institute of Research and the Centers for Disease Control to participate in the work accomplished on nutrition in American Somoa and the Marshall Islands.

The Veterans Administration Employee Education Steering Committee. The CDHAM was also involved in numerous meetings to support the Veterans Administration (VA) Employee Education Steering Committee (EES) for Public Law 107-287. The EES is a newly organized effort to provide training to VA employees in response to Public Law 107-287 and to address the VA's responsiveness and facility preparedness against bioterrorism after the events of September 11, 2001. The CDHAM represented the USU at all Sub-Committee Chair and Working Group Conferences on topics dealing with biological and chemical agents, radiological weapons, mental health and stress management, and explosive agents and blast injuries. In accordance with the language of the public law, the VA is developing a series of close-circuit televised training lectures on the five topic areas, as well as network education modules leading to competency certification of VA employees with the help of subject-matter experts at USU.

USU Center Participates in a Three-Day Conference in Laredo, Texas, "Los Dos Laredos."

CDHAM personnel attended a conference entitled, *Binational Communication to Enhance Public Health*, in Laredo, Texas, which addressed issues of public health safety along the United States and Mexican border. The CDHAM presentation, ***Response to Bioterrorism with High Technology***, promoted commercial, off-the-shelf technologies in telemedicine that are evaluated as part of CDHAM's Operations and Technology Cell for use in consequence management settings. The conference had over 250 attendees and was affiliated with the United States-Mexico Border Health Association (USMBHA), which the CDHAM has supported over the past three years. The CDHAM also took part in a five-day symposium, ***Bioterrorism and Emerging Infectious Diseases Conference***, in Mexico City, Mexico, which was hosted by the United States Navy, Office of Naval Research. The CDHAM Director presented lectures concerning bioterrorism and consequence management in relation to humanitarian assistance/disaster response. In addition, the CDHAM Director was a member of a team engaged in bilateral United States - Mexico meetings concerning critical infrastructure protection in Mexico City, Mexico.

The Fiscal Year 2004 CONUS Air Force Medical Service Exercise, Concept Development Meeting. To support the United States Air Force Humanitarian Assistance/Disaster Relief (HA/DR) Programs, CDHAM personnel attended the *Fiscal Year 2004 CONUS AFMS Exercise, Concept Development Meeting* and provided a briefing on the after-action/lessons learned proposal from CDHAM's Report 02-06, *Information Management for More Effective Humanitarian Assistance Projects and Program*, on the Measures of Effectiveness Study completed during 2002. The conference was attended by 25 decision-makers of the United States Air Force International Health Specialist Subspecialty; it provided CDHAM with an opportunity to continue to seek a user community for the evaluation and implementation of its web-based information gathering and reporting and retrieval system to support HA/DR planning and execution.

United States Air Force Reserves and National Guard Working Group. The CDHAM is actively involved with a working group hosted by USU to address the topic of training and education and certification programs for the United States Air Force Reserve and National Guard Components. The CDHAM is actively pursuing means to serve as a resource for developing and operating web-based training, while avoiding duplication of effort, for the Guard and Reserves as part of its homepage on the World-Wide-Web.

Support to the 354th CA Battalion, Washington, D.C. The CDHAM provided resource materials to a Navy representative from the 354th CA Battalion in preparation for deployment in response to Operation Iraqi Freedom.

USU School of Medicine Department of Surgery and the Center for Prostate Disease Research - A TriService Effort.

Background. The Center for Prostate Disease Research (CPDR) is a United States Department of Defense Program located in Rockville, Maryland; it integrates basic and clinical science multidisciplinary programs to develop promising detection techniques and treatments for prostate cancer and disease. The CPDR was established in 1991, by the United States Congress in an effort to combat the increasing rate of occurrence of prostate cancer. Current figures released by the American Cancer Society reveal that over 230,900 American men will be diagnosed with prostate cancer this year and that approximately 29,900 of those men will die from the disease.

The CPDR is a USU program located in Bethesda, Maryland; it is affiliated with the Walter Reed Army Medical Center (WRAMC) and the Armed Forces Institute of Pathology (AFIP), both located in Washington, D.C., as well as nine, TriService (Army, Navy and Air Force) Military Medical Centers located throughout the United States. The CPDR is administered by the Henry M. Jackson Foundation for the Advancement of Military Medicine.

Mission. The CPDR is unique, in that it incorporates three distinct areas of prostate disease research into one comprehensive program. In particular, clinicians are working closely with basic scientists, pathologists, and other medical researchers to advance the field. **Colonel Judd W. Moul, MC, USA, Urologic Oncologist, Walter Reed Army Medical Center (WRAMC), Professor, USU SOM Department of Surgery, and Colonel David G. McLeod, MC, USA, Urologist, Walter Reed Army Medical Center (WRAMC), Professor, USU SOM Department of Surgery,** served as the Directors of the Center for Prostate Disease Research during 2003.

Center Activities During 2003.

Clinical Research Center. The CPDR Clinical Research Center, located at the Walter Reed Army Medical Center in Washington, D.C., provides state-of-the-art care to military beneficiary patients affected by prostate disease, with particular emphasis on enrolling military beneficiaries in clinical trials. The CPDR combines prostate screening, data collection, clinical diagnosis, education and counseling in a distinctly patient-oriented setting.

The CPDR Clinical Research Center at WRAMC made great strides during 2003. It has enhanced its collaborative efforts in radiation therapy; created a clinical trial portfolio covering all stages of prostate cancer; strengthened clinical trails and sponsored screenings; created a seamless system for maintaining at least yearly contact with its database patients; initiated the utilization of various clinics and special events for research opportunities; increased the number of investigator-initiated clinical trails, as well as other trails that can be supported within existing resources; and, initiated work on an ICDB *clinic note* to help with data collection.

CPDR Tables. In a paper published in the March 2003 issue of the journal, *Urology*, CPDR reported on a new prognostic model, developed to predict pathologic outcome at the time of radical prostatectomy. A complement to the widely used Partin Tables, the CPDR Tables incorporate the patient's quantitative histology - the percentage of biopsy cores that contain cancer, among other clinical variables, to predict the likelihood of cancer recurrence following radical prostatectomy. The CPDR Tables are rapidly gaining acceptance among prostate cancer clinicians.

Collaboration with the National Cancer Institute. CPDR recently initiated a close collaboration with the National Cancer Institute (NCI). **Doctor William Dahut, Chief of Genitourinary Clinical Research and Head of the NCI Prostate Cancer Clinic**, is now actively conducting studies of patients enrolled for research through CPDR's clinical site at the National Naval Medical Center.

TriService, MultiCenter National Prostate Cancer Patient Database. The CPDR Patient Database is one of the largest, most comprehensive prostate cancer patient databases in the country. After informed consent, patients provide comprehensive data about their care, which is maintained in a state-of-the-art relational computer database. **Leon Sun, M.D., Ph.D., MultiCenter Database Administrator, Research Assistant Professor, USU SOM Department of Surgery, and Colonel Judd W. Moul, MC, USA**, led this monumental project, which is administered, nation-wide, by principal investigators and database managers at nine, nationwide TriService Military Medical Centers. *The CPDR database has evolved into a valuable research tool for both clinicians and scientists working in the prostate disease field. Currently, there are more than 532,000 records on over 20,000 patients in the database.*

Patient Education and Outreach. In 2003, CPDR initiated efforts to provide patient education and outreach through participation in community health fairs, such as the *NBC4 Health and Fitness Expo*, held at the Washington D.C. Convention Center, the *Capitol Hill Health Fair* in Washington, D.C., and numerous similar events.

The scientific staff of the Basic Science Research Program (BRP) is committed to the teaching and training of urology residents, post-doctoral fellows, graduate students, and medical, college, and high school students. The BRP has, on average, 10 to 15 trainees per year; the BRP scientists actively participate in the meetings organized by CaP (prostate cancer) support groups and other local, regional, and national meetings.

Academic and Administrative Responsibilities of Members of the Basic Science Research Program at USU and the United States Military Cancer Institute. The senior scientific staff members of the CPDR are actively involved in the research training of residents, graduate students, medical students, and high school summer interns within the CPDR. Some of the members of CPDR are also actively involved in the formal teaching of medical and graduate students focusing on topics related to urology and cancer biology. CPDR members continuously provide their services to the USU SOM Department of Surgery and other academic and research activities at USU on an as-needed basis. Researchers at the CPDR contribute to the research meetings in the USU SOM Department of Surgery and other USU activities. There are numerous collaborative interactions between CPDR and the USU faculty; USU and

the scientific staff of the CPDR Basic Science Research Program actively contribute to the planning and development of the United States Military Cancer Institute (USMCI). In addition, the CPDR BRP staff serve as members on numerous USU and USMCI committees.

CPDR Website Receives High Ratings. In 2003, the prestigious publication, Prostate Cancer Science and Clinical Practice, ranked the CPDR website as the **6th Best Among Not-For-Profit Websites** with specific content related to prostate cancer. This reference book was published by Academic Press, an imprint of Elsevier, which publishes Clinical Oncology and other recognized academic journals.

Basic Science Research Program. In the Basic Science Research Program of CPDR, 2003 proved to be a great success for research productivity. Under the direction of **Shiv Srivastava, Ph.D., CPDR Scientific Director, USU SOM Research Associate Professor, Department of Surgery**, the Basic Research Program of the CPDR now includes more than twenty-five cancer researchers including the **Associate Director, Doctor Johng Rhim**, and the **Assistant Director, Doctor Vasantha Srikantan**, three Senior Investigators, a Laboratory Manager, Post-Doctoral Fellows, WRAMC Urology Residents, Research Assistants, and USU graduate and medical students. The Basic Research Program Team has developed a vigorous long-term research program and unique bio-resources with a team of dedicated researchers to address molecular genetic alterations during the on-set, or the progression of, prostate cancers. *Collaborative efforts between Doctor Srivastava and Doctor Judd Moul, CPDR Director, have led to the integration of basic and clinical research activities at the CPDR.* This allows the rapid translation of basic research discoveries into the clinical arena (i.e., the evaluation of biomarkers for prostate cancer progression and the identification of new targets for therapy). Also, prostate cancer gene discovery efforts at the CPDR, using state-of-the-art global gene expression profiling and positional cloning strategies, are uncovering novel gene alterations in prostate cancer. In 2003, the Basic Research Program produced peer-reviewed papers of high quality that have been published in the leading cancer research journals, to include: Cancer Research, Oncogene, and Clinical Cancer Research. In addition to CPDR funds, extramural grants from the National Institutes of Health, DoD, and private companies support the CPDR Basic Science Research Program.

Proteomics Research Activities. Two state-of-the-art technologies being evaluated at CPDR include serum proteomic profiling using surface enhanced laser desorption and ionization (SELDI) and the detection of circulating prostate epithelial cells (CPECS) in the peripheral blood of patients. Proteomics is the study of proteins and their interactions in cells; samples that can be tested in this manner include serum, semen, urine, and plasma.

SELDI is a method in which proteins are selectively bound to a chemically-modified solid surface, or *chip*; unbound proteins are removed by washing; an energy-absorbing matrix is applied; and, the proteins are identified by a mass spectrometer. This ProteinChip System can analyze trace amounts of native proteins in their natural state and requires only one drop of blood. Through bioinformatic analysis, hidden patterns in the serum proteomic profiles of known prostate cancer patients and healthy males provide algorithms, which can predict the disease status of serum samples with fairly high accuracy (85% specificity/sensitivity). Through this method, CPDR scientists report promising results with great potential, in terms of clinical value, in being able to distinguish between patients with prostate cancer

and patients with conditions such as BPH, or other prostate disease, which PSA testing is unable to do. Further development of this technology is in progress at the CPDR.

Another breakthrough, the detection of circulating prostate epithelial cells (CPECS) in the peripheral blood and bone marrow of prostate cancer patients, shows great diagnostic and prognostic potential. These circulating cells can be isolated from the blood and detected as they travel from the prostate cancer to the rest of the patient's body. These cells are identified by the presence of genes, which are selectively expressed in the prostate such as PSA. It is now apparent that CPECS are mostly detected in prostate cancer patients and rarely present in normal controls. Detection of CPECS in prostate cancer patients has been successfully performed in the CPDR laboratory by sensitive methods that involve PCR amplification, or the production of large amounts of DNA, followed by the detection of very specific DNA (in this case, prostate related). The specificity and sensitivity of this method is very high - greater than 85% in the initial experiments. While CPECS could provide more methods of CaP (prostate cancer cell) detection, quantitative measurement of CPECS may have prognostic utility. For example, patients with an increased number of CPECS may suggest a more advanced stage of the disease than anticipated by current diagnostic modalities; research along these lines is in progress.

In August of 2003, the CPDR published its initial findings on the diagnostic potential of using serum SELDI-TOF-MS protein profiling in prostate cancer. *These preliminary results were also presented at multiple scientific meetings, including the Annual Meetings of the American Urological Association, the American Association for Cancer Research, the Society of Urological Oncology, and the 50th Annual Kimbrough.*

Collaborations on CPDR proteomics studies have also been formed with such institutions as the National Cancer Institute Center for Bioinformatics, the Eastern Virginia Medical School, and Science Applications International Corporation (SAIC). ***A significant collaborative achievement was the inclusion of the CPDR in a multi-institution validation trial under the National Cancer Institute - Early Research Detection Network.*** A noteworthy CPDR paper entitled, *PMEPA1, an Androgen-regulated NEDD4-binding Protein, Exhibits Cell Growth Inhibitory Function and Decreased Expression during Prostate Cancer Progression*, demonstrated the important role of the PMEPA1 protein in prostate cancer. The PMEPA1 gene was discovered by CPDR researchers several years ago; by utilizing primary prostate cancer cell lines, CPDR researchers found promising findings that the loss or reduced PMEPA1 expression in prostate cancer further suggests its role in prostate tumor growth.

The Prostate Cell Center. The Prostate Cell Center of the CPDR is under the direction of **Doctor Johng S. Rhim, Associate Scientific Director, CPDR, and Research Professor, USU SOM Department of Surgery.** The Prostate Cell Center, established in January of 2000, continues to facilitate studies of new prostate cell lines. Doctor Rhim and his team continue working towards the Center's goal - *the generation and characterization of cell lines from primary tumors of prostate cancer patients as well as from normal prostate tissues of the same patients.* This also includes cell lines from familial prostate cancer patients. ***The Prostate Cell Center also serves as a resource center to provide primary cell cultures of epithelial cells derived from normal and malignant prostatic tissues to the larger scientific research community.*** The availability of these cell cultures, as well as derived materials such as RNA, DNA, proteins and conditioned media, facilitates research by other investigators who do not have the means to establish primary cultures themselves. Doctor Rhim and his colleagues from the CPDR have

reported the discovery and characterization of two new prostate cancer cell lines in two leading cancer journals, Cancer Research and Oncogene.

The CPDR Administration and Staff. The CPDR administration and staff is currently comprised of over 80 researchers and support staff located at USU, WRAMC, AFIP, the Rockville, Maryland CPDR site, and nine participating military medical sites throughout the Nation. The synergism of this professional team of principal investigators, clinical and laboratory researchers, and administrative and scientific support staff has enabled the CPDR to produce cutting-edge quality prostate cancer research. This dynamic program will continue to focus on improving the treatment and detection methods for prostate disease in the military community. The ultimate goal is to improve the health care of all American men suffering from this *silent killer*, which affects, at some time, one out of every five men. More information is available on the CPDR web site at <www.cpdr.org>.

The United States Military Cancer Institute.

Background/Organization. The United States Military Cancer Institute (USMCI) is a component of USU; the Director of the Institute reports directly to the President of the University. In addition to the USU SOM, other components of the USMCI are the Walter Reed Army Medical Center, the National Naval Medical Center, the Malcolm Grow Air Force Medical Center, the Armed Forces Institute of Pathology, and the Armed Forces Radiobiology Research Institute. The Institute has, as its objective, the enhancement of multi-disciplinary cancer research under the USU aegis; the ultimate goals are to advance the science of cancer prevention, diagnosis, treatment, and research. **John F. Potter, M.D., former Director of the Lombardi Cancer Center at Georgetown University, and Professor of Surgery at USU,** serves as the Director of the USMCI. Doctor Potter is also the Department of Defense (DoD) Representative to the C-Change, an entity that brings together leaders in the National Cancer Community from academia, government and industry; he also serves as the DoD Representative to the National Cancer Advisory Board of the National Cancer Institute.

Mission. The mission of the United States Military Cancer Institute is to promote collaborations among DoD basic and clinical scientists to augment cancer-related patient care and research activities. Significant numbers of DoD beneficiaries have been afflicted by cancer in the past 14 years. Basic scientists at USU are contributing significantly to translational cancer research with clinicians at the local military hospitals.

Benefits of the Cancer Institute. Cancer remains a very significant issue for the DoD beneficiaries in the Military Health System (MHS). Last year, more than 355,000 patients were treated for oncologic conditions; annual costs for cancer care in the MHS are estimated at \$1 billion, of which TRICARE paid \$550 million.

There are a number of benefits that will result from the establishment of the USMCI. The USMCI will further enhance the academic prestige of USU and would position the University among the premier academic entities in the Nation. As a consequence, student applications to USU would be increased. Medical and nursing students will benefit from their involvement in multi-disciplinary patient care, which is the hallmark of state-of-the-art cancer treatment. The Institute will enhance the collaborative relationships among cancer scientists in both the basic and clinical areas. The increased public awareness of the high quality of care provided to cancer patients in military treatment facilities should increase the flow of patients to the military treatment centers. Post-graduate education must also have large numbers of patients for teaching purposes; this level is being threatened in some hospitals. The USMCI will increase patient accessions to the military treatment facilities. Moreover, these cancer patients present extremely challenging surgical and medical conditions. Caring for such patients maintains and enhances the skills of staff physicians, residents, medical students, and nurses. A cancer institute will stimulate the submission of grant applications to the National Institute of Health and other such prestigious entities. An increase in grant awards would be a clear indication of the high quality of research being conducted at the University. The Institute could also serve as a model for TriService collaboration.

The United States Military Cancer Institute has been accepted as a member of the Association of American Cancer Institutes. This Association, to which all of the leading cancer centers in this country belong, has established rigid guidelines for admission. These include the performance of high quality basic, translational, and clinical research. The Association reviewed the extensive documentation, which it requires, describing the USMCI research programs before voting for acceptance. This recognition is a tribute to the quality of USMCI research and patient care activities.

- *The Weekly Activities Report, Uniformed Services University Military Cancer Institute Recognized*, Health Affairs, Office of the Secretary of Defense, September 3-7, 2002.

Achievements of the Institute. Since its inception, the Institute has accepted over 90 candidates as members. These basic and clinical scientists have formed TriService, multi-disciplinary research teams and programs. For example, the USMCI member programs now include the Center for Prostate Disease Research, the Clinical Breast Care Project, and the Cancer Vaccine Development Laboratory. Other programs focus on soft-tissue sarcoma and gynecologic oncology. A Committee of Scientific Advisors, composed of nationally distinguished cancer scientists, meets annually to review the progress of the Institute. At its most recent meeting, the Committee declared that it was impressed with the progress of the Institute and expressed renewed support for the focus of the Institute on cancer prevention and control. This theme was adopted because it will capitalize on the talents of the basic scientists of the USU SOM to conduct translational research with clinicians in the local military hospitals. Also, the wellness concept is important for DoD's strategic goal on medical readiness. To achieve these goals, a nationally prominent epidemiologist has been recruited as the Associate Director for Epidemiology. Recently, a Memorandum of Understanding was signed with the National Cancer Institute (NCI) to conduct epidemiological studies on military beneficiaries; the NCI is funding this effort in the amount of \$250,000.

Services Sign Memorandum to Combine Efforts in Cancer Research. The Commanders of four local military health care facilities signed a Memorandum of Understanding in February of 2002, to create the first TriService Institutional Review Board for the United States Military Cancer Institute. In the past, the necessity for an investigator to obtain Institutional Review Board (IRB) approval from each institution at which the investigator wished to perform research (which often amounted to the completion of approval processes with four or five entities) served as a substantial roadblock to collaborative research. However, the signing of an agreement by the Commanders from the Walter Reed Army Medical Center, the National Naval Medical Center, the Malcolm Grow Medical Center, and the President of USU will enable researchers to obtain the required reviews of their research protocols through a more streamlined process. Instead of being required to submit a protocol to the IRB sponsored by each individual institution, a researcher can now make one submission to one *integrated* Institutional Review Board. This will facilitate the work of the investigators and expedite cutting-edge discoveries and technology for the DoD communities.

Establishment of the USMCI Committee. A USMCI Committee has been established to support and advise the United States Military Cancer Institute. **The Honorable Frank Carlucci, former Secretary of Defense and National Security Advisor to the President of the United States,** serves as the Committee Chair. Other members include **The First Lady of the United States, Mrs. Laura Bush; Ms. Ellen Stoval, President and CEO of the National Coalition for Cancer Survivorship; Mrs. Marlene Malek, President of Friends of Cancer Research; Doctor Jeong Kim, Chairman of CIBERNET Corporation; General H. Norman Schwarzkopf, USA, Retired; and, Mr. Gerald S.J. Cassidy, President of Cassidy and Associates.**

Congressional Recognition. The Congress of the United States has both recognized the United States Military Cancer Institute and mandated substantial funding for its operations during Fiscal Years 2002 and 2003.

The USU SOM Departments of Family Medicine *and* Medical and Clinical Psychology and the USU Center for Health Disparities Research and Education - *Project EXPORT*.

Background. Despite overall improvements in health in the United States, there continues to be substantial health disparities within ethnic/racial minority (i.e., African-Americans, Hispanics, Native Americans, Asians) and other underserved populations. These disparities are believed to be the result of a complex interaction of many variables, such as biological factors, the environment, patients' health-related behaviors, and inadequate provider training. Greater efforts are needed to develop effective and efficient methods to reduce and ultimately eliminate these disparities. The Liaison Committee on Medical Education (LCME) has also stated that medical faculty and students need to address gender and cultural biases in the delivery of health care and, in general, prepare providers to care for diverse patient populations. Under the direction of **Evelyn L. Lewis, M.D., MA (CDR, MC, USN, Retired), SOM Department of Family Medicine**, and **Richard Tanenbaum, Ph.D., SOM Department of Medical and Clinical Psychology**, USU developed a biopsychosocial training program for medical students and residents, nursing students, clinical/medical psychology graduate students and other prospective health care professionals, faculty, and staff. The USU SOM Center for the Enhancement of Healthcare Training and Outcomes (CEHTO) enables the University to comply with the LCME requirements and improves USU's curricula by providing training to optimize patient adherence and enhance health care outcomes. Specifically, CEHTO has been established to: 1) infuse concepts and processes into existing curricula in order to advance a biopsychosocial philosophy and improve cultural proficiency; 2) provide a forum in which students have the opportunity to practice the skills and strategies addressed in the classroom; 3) facilitate the development of culturally respectful relationships, inside and outside of the USU community; and, 4) evaluate the impact of this initiative and continuously improve and refine the training provided.

During 2003, the University and the SOM Departments of Family Medicine and Medical and Clinical Psychology applied for, and successfully received, a substantial grant from the National Institutes of Health (NIH) to sponsor the USU Center for Health Disparities Research and Education, referred to as ***Project EXPORT***. **Evelyn L. Lewis, M.D., MA, USU SOM Department of Family Medicine**, is the Principal Investigator on the NIH grant; and, **Richard Tanenbaum, Ph.D., USU SOM Department of Medical and Clinical Psychology**, serves as the Co-Principal Investigator and Project Director. **David S. Krantz, Ph.D., Professor and Chair, USU SOM Department of Medical and Clinical Psychology**, is the Center Director. As part of ***Project EXPORT***, CEHTO will assist in meeting the following objective: to develop workshops and other educational forums that focus on disseminating critical knowledge about health disparities and teaching practical skills in order to maximize culturally proficient health care service delivery.

Mission. The USU Center for Health Disparities Research and Education (CHD) aims to improve the quality of healthcare services provided to all patient populations. Newly funded by a National Institutes of Health (NIH) grant administered by the Henry M. Jackson Foundation for the Advancement of Military Medicine, and in partnership with the University of Maryland-Eastern Shore and community-based organizations, the Center's goal is to promote positive health-related change and ultimately reduce health disparities among racial and ethnic minorities and other underserved populations through research, education, training, community outreach and information dissemination.

Center Activities and Scope of Work. The Center's research, education, training, community outreach, information dissemination and shared resource (information technology) components operate both independently and synergistically to fulfill *Project EXPORT*'s scope of work through the following approaches:

Research. The Center conducts research to systematically investigate issues central to the understanding and amelioration of health disparities (i.e., evaluate recently developed training methods to improve medical providers' knowledge and skills to reduce health disparities and explore other bio-behavioral and biomedical contributions to health care disparities in minority and underserved populations). The current, primary research projects are summarized as follows:

- ***Obesity Treatment and Prevention among African Americans: Utilizing Networks Outside Traditional Settings to Eliminate Health Disparities.*** Funded by the National Institutes of Health, this USU SOM research project primarily focuses on health behaviors in general, and on diet and weight management in particular. A core element of the project is the delivery of evidence-based weight loss instruction (Behavior Choice Therapy, BCT) to African American women from the National Capital Area. The goal of this research is to promote long-term behavior change in the treatment of overweight and obesity and to prevent health problems and disease;

- ***Reducing Health Disparities Through the Enhancement of Patient-Provider Relationships.*** This project is designed to assess the effectiveness of a cultural proficiency training program to enhance health care providers' interpersonal and communication skills and cultural knowledge so that they are better able to engender trust and collaboration with multicultural patient populations. This research project will also test the efficacy of the healthcare provider training component described in the Minority and Underserved Population Health and Health Disparity Education Program Component;

Educate. The Center will educate healthcare sector students, faculty, other health care professionals, and community members about health care disparities and will provide methods to reduce disparate treatment with a goal to improve healthcare outcomes;

Promote. The Center will promote and create effective mechanisms for the recruitment and training of students from minority and underserved populations in the biomedical sciences, research, and healthcare fields;

Develop. The Center will develop mutually beneficial and collaborative research, training, and educational partnerships with ethnic/minority community groups (i.e., churches, community health centers and providers, the YMCA and other youth organizations), academic institutions, scientific communities, medical centers, and other entities;

Disseminate. The Center will disseminate relevant and culturally tailored, health-related information through its collaborative research, training and educational partnerships; and,

Ensure. The Center will ensure that all research and project status data are collected, analyzed, and reported effectively and efficiently; and, also ensure that all components are provided with the information technology needed to realize their objectives through the on-going utilization of a shared core of resources.

Minority and Underserved Population Health and Health Disparity Education. The objective of the Minority and Underserved Population Health and Health Disparity Education Program Component is to develop workshops and other educational forums that focus on disseminating critical knowledge about health disparities and teaching practical skills in order to maximize culturally proficient healthcare service delivery. The Minority and Underserved Population Health and Health Disparity Education Component of *Project EXPORT* focuses on providing both didactic training and experiential exercises to sensitize current and future healthcare and biomedical science professionals to the need for reducing and ultimately eliminating healthcare disparities in minority and underserved populations. To date, USU/CHD and CEHTO accomplish this objective by infusing cultural sensitivity and proficiency training modules into existing USU courses and clerkships and providing opportunities for students to practice, hands on, the strategies and techniques introduced and discussed in the classroom. Part of the experiential aspect of this training is accomplished by using standardized patients at the USU SIMCEN (described in Section I of this report). Training USU faculty and those at the educational institutions, where the Center has established collaborative partnerships, is another essential aspect of the training initiative. This training will not only educate the faculty about the goals and objectives of the Center, but as with the students, it will serve to assist in helping these individuals to enhance their own cultural proficiency and multicultural sophistication.

Community Outreach and Information Dissemination. The objective of this component of *Project EXPORT* is to actively involve community partners in research, training opportunities, and educational offerings to maximize the understanding and reduction of health disparities in minority and underserved populations. Through multiple activities, the Community Outreach and Information Dissemination Component extracts, synthesizes and compiles relevant material and information from the other primary components of *Project EXPORT*, and translates the resulting data into user-friendly materials for dissemination. The objectives include providing health promotion related materials and information about available healthcare services to minority and underserved populations most vulnerable to disparate healthcare treatment. In addition, the necessary infrastructures to carry out research is provided to the appropriate communities; and, opportunities to participate in research studies to elicit data about healthcare disparities will be publicized.

The Training Component. The objective of the Training Component is to provide exceptional training opportunities in biomedical research and the clinical sciences for students and junior faculty throughout the span of their academic development. The Training Component provides learning

opportunities primarily at the undergraduate level. More specifically, USU/CHD summer programs make research opportunities available to college students who are members of minority and underserved populations. These learning opportunities focus on research in the biomedical and behavioral sciences. Students are assigned faculty mentors to make their learning experiences as successful and productive as possible.

Shared Resource Core: *EXPORT* Data Network. The objective of the Shared Resource Core is to provide on-going data management and systems support to ensure the effective functioning of *Project EXPORT*. The goal of the Information Technology (IT) Shared Resource Core is to support and facilitate consistent and high quality research by providing appropriate IT infrastructure to enable data collection, storage, management, and analysis and the generation of reports; this support also includes interaction and information exchange among the Center components and the timely dissemination of information to all participants. Information Technology support is also provided in the areas of training, program evaluation, budget tracking, and other Center requirements.

Vision and Goals. USU's newest Center, established to address critical concerns over disparities in healthcare and treatment, is positioned and funded to conduct research and effect positive health-related change among individuals and populations in greatest need. As it solidifies its operational infrastructure, ***Project EXPORT*** is enthusiastically looking forward to working with current and future partners, both within the USU and the external community, to collaboratively achieve the best possible healthcare and treatment outcomes for minority and underserved populations.

The TriService Nursing Research Program - A Joint Program Under the Leadership of the Chief of the Army Nurse Corps and the Directors of the Navy and the Air Force Nurse Corps.

Background. The TriService Nursing Research Program (TSNRP) is a Congressionally authorized program targeted to support research conducted by military nurses (S.R. 107-732). In 1996, the TriService Nursing Research Program was authorized as part of the DoD Health Care Program and established at the Uniformed Services University of the Health Sciences (Chapter 104, Title 10, U.S. Code, as amended). The TSNRP is under the leadership of the Chief of the Army Nurse Corps and the Directors of the Navy and the Air Force Nurse Corps. The continuing investment of resources and support from the Congress for military nursing research has begun to yield valuable results as uniformed nurse investigators have initiated efforts to expand the scientific foundation for military nursing.

Mission. During 2001, the TriService Nursing Research Program re-defined its mission: *to provide resources for the conduct and use of research to foster excellence in military nursing care*. To achieve its mission, four goals were identified:

- 1) Increase the military nursing research capacity by providing opportunities for nurses to engage in military nursing research;
- 2) Expand the breadth and depth of the nursing research portfolio by encouraging and funding programs of research in TSNRP's focused areas of investigation: *deployment health; developing and sustaining competencies; recruitment and retention of the workforce; clinical resource management; military clinical practice*; and, *outcomes management*;
- 3) Develop partnerships for collaborative research among the Services and their components, institutions, disciplines and agencies; and,
- 4) Build an infrastructure to stimulate and support military nursing research and provide resources to support the exploration of salient military nursing research issues.

The TSNRP's first Director was appointed in 1997, to coordinate and implement all aspects of the program and to manage the *day-to-day* operations of the TSNRP. Also during 1997, the TSNRP established the Resource Center for Excellence in Military Nursing (Resource Center) to provide resources for nurse clinicians, nurse researchers, and policy makers in support of military nursing research. The major goals of the Resource Center, reestablished in 2001, include the following:

- Provide military nurse researchers with a repository of information for use in designing, implementing, and disseminating nursing research;
- Improve the quality and quantity of proposals submitted by military nurse clinicians;
- Facilitate the implementation of research findings into clinical practice; and,
- Promote the timely dissemination of TSNRP-funded research findings.

A total of 245 research proposals have been funded by the TSNRP; *more than 600 military nurses have been involved in TSNRP-funded research since the program's inception, as principal, co-, and associate investigators, as well as consultants and data collectors.* With a redefined mission, identified goals and strategies, and the Resource Center for Excellence in Military Nursing firmly in place, the TSNRP offers military nurse researchers a full spectrum of services that will ultimately improve the ability of military nurses to provide appropriate, high quality health care for the Armed Forces.

Highlights of TSNRP Activities During 2003.

New Program Director. The Director of the TSNRP must be an active duty military nurse; and, the position is rotated among the three Services. The leadership position was passed to the Navy in the Summer of 2003, when **Commander Patricia W. Kelley** became the TSNRP's third Director. As Director, CDR Kelley coordinates and implements all aspects of the program and manages the *day-to-day* operations of the TSNRP.

General Program Activities.

Outreach. One of the strategies employed to stimulate and support military nursing research is to increase the visibility of opportunities available to military nurses through the TSNRP. In 2003, the TSNRP was exhibited at various nursing forums throughout the Nation, to include: ***The 36th Annual Communicating Nursing Research Conference***, Western Institute of Nursing, held in Phoenix, Arizona; ***The Sigma Theta Tau International Research Congress***, held in St. Thomas in the United States Virgin Islands; ***The Uniformed Nurse Practitioners Association Conference***, held at the American Academy of Nurse Practitioners, in Anaheim, California; ***The Charles J. Reddy Leadership Development Conference***, held in Washington, D.C.; and, ***The 109th Meeting of the Association of Military Surgeons of the United States (AMSUS)***, held in San Antonio, Texas.

Website. The TSNRP maintains an active web site, <www.usuhs.mil/tsnrp>, which provides investigators with current information on opportunities for: dissemination; funding sources (to include eligibility, requirements and application forms); previously funded TSNRP research and findings; references and links to related web sites; and, Resource Center activities. Approximately 19,000 *hits* were logged during the past two years.

Newsletter. A quarterly newsletter was started during 2003, to provide grant-related information to current TSNRP investigators and to increase networking among the TriService investigators.

2003 Testimony Before the Senate Appropriations Committee, Subcommittee on Defense. During 2003, each Nurse Corps Chief and Director, in submitted written testimony for the Subcommittee on Defense, Senate Appropriations Committee, cited the value of the TriService Nursing Research Program to military nursing practice. In his testimony, the **Army Nurse Corps Chief, Brigadier General William Bester** stated:

The TriService Nursing Research Program continues to offer a breadth of supportive activities, such as workshops and symposiums to promote, encourage, and develop both our novice and seasoned researchers. It is clearly evident by the types of proposals submitted that nursing research is, and will continue to be, focused on relevant and timely research problems that necessitate solid outcome data. Your continued support of the TriService Nursing Research Program is truly appreciated and has resulted in continued advances in nursing practice for the benefit of our soldiers, their family members, and our deserving retiree population.

The Navy Nurse Corps Director, Rear Admiral Nancy Lescavage, testified that:

Through your support of the TriService Nursing Research Program funding, research has been conducted at our three major medical centers, our two Recruit Training Centers, several Naval Hospitals, on more than six aircraft carriers and collaboratively with our uniformed colleagues and more than thirteen universities across the country.

The Air Force Nurse Corps Director, Major General Barbara Brannon, testified:

Another (TSNRP) study conducted on in-flight invasive hemodynamic monitoring identified inaccuracies due to procedural variance. The recommendations resulted in significant process changes - and for the first time change was driven by scientific research. These process changes will be incorporated into the training programs for Critical Care Air Transport Teams (CCATT) and Aeromedical Evacuation (AE) nurses.

Pre-Grant Award Activities.

2003 Grant Writing Camp. The TSNRP Resource Center sponsors an annual two-phase summer workshop to expand the grant-writing skills of military nurse researchers. Phase I is a five-day workshop that features a balance between lectures, small group discussion, *one-on-one* sessions with faculty, and homework to support the improvement of the participants' draft proposals. Phase II offers a two-day workshop intended to increase the participants' understanding of the scientific review process. To accomplish this, each participant's research proposal is reviewed by two peer-reviewers, as well as by a faculty reviewer. Comments from the 2003 Grant Writing Workshop participants include: ***This is an***

exceptionally well-done program... Working with the faculty in the afternoon was priceless... Excellent coordinated effort by the entire group. Three participants from the 2002 grant-writing workshop were funded by the TSNRP during Fiscal Year 2003; seven participants from the 2003 workshop submitted proposals during the first funding cycle of Fiscal Year 2004.

Graduate Research Awards. The submission process for this award category was expanded in late 2003 to facilitate keeping military students in school both on time and on track. Applications are now accepted for this award at any time between October 1st and April 30th of each year.

Three-Tiered Proposal Review.

Review for Scientific Merit. All proposals submitted to the TSNRP for funding are subject to rigorous peer review designed to evaluate the scientific merit of the research proposals. Nurse scientists selected from the health care community for their research experience, publications, and work experience, comprise the review panel. Military reviewers evaluate the proposals for the feasibility of implementing the research in a military environment.

Review for Programmatic Merit. Following the scientific merit review, the TSNRP Advisory Council, comprised of one representative from both the Active Duty and Reserve Components from each branch of the military Services, conducts a programmatic review. Council members assess the likelihood that the proposed research will meet TSNRP goals and priorities.

Awarding of Grants. Final funding decisions are based on scientific and programmatic evaluations; grant awards are made by the TSNRP Executive Board of Directors, the Corps Chief and Directors of the three Nurse Corps.

Grant Award Activities.

Grant Management Workshop. Since 1998, the TSNRP has provided a three-day grant management workshop for newly funded principal investigators; and, since 2001, project directors. The workshop is designed to provide education on Federal, DoD, and USU regulations and requirements, as well as practical information on managing a research grant. Presentations at the 2003 workshop included didactic sessions, case studies, and small group discussions in areas such as: grant agreement regulations and cost principles; Federal and local institutional review board (IRB) requirements; research integrity; copyright laws; ethics in research; the investigator's role and responsibilities; assistance visits; reporting requirements; and, budget management. The workshop provides an opportunity for investigators to meet the TSNRP staff and to establish a working relationship; it can also be a venue for the investigators to network with other military nurse researchers from their own and other Services. The response to the workshop, which was well received by the TSNRP investigators, was outstandingly enthusiastic.

Grant Management. Two full-time grant managers provide routine monitoring and timely assistance for over 60 active research grants. Investigators receive assistance from TSNRP grant managers for a myriad of issues, to include: requests for changes in research design and study personnel; additional funding and extensions to the study period; disposition of equipment; monitoring and tracking of regulatory compliance and human subject protection training; and, reviewing progress of the research.

The TSNRP Web Site. As indicated above, the TSNRP maintains an active web site, <www.usuhs.mil/tsnrp>, which provides the investigators with current information on opportunities for dissemination; application eligibility, requirements and forms; previously funded TSNRP research and findings; references and links to related web sites; and, Resource Center activities. More than 19,000 hits have been logged since a counter was placed on the site in early 2002.

Post Grant Award Activities.

Fiscal Year 2003 Funded Research. Fourteen military nurse researchers received funding, during 2003, in the following areas: active duty military care givers' experiences; prostate cancer screening for African American and Asian/Pacific Islanders; recruitment issues for Bachelor of Science in Nursing students; coping strategies for stress-related urinary incontinence; CCAT nursing in the combat environment; ventilator-acquired pneumonia; evaluating the Combat Medic Skills Evaluation test; bioterrorism education; after-action reports for readiness/competency training; stress and resiliency of reservist families; postpartum fatigue in active duty military women; and, combat casualty aeromedical nursing.

Research Fellow Award. This innovative funding category is intended to facilitate the expansion of military nurse scientists' research skills. It can also be used to facilitate the training of military nurses interested in research. The first Fellow Award was made during 2003 for training in instrument development and psychometric testing.

Grant Management Workshop. Beginning in 1998, the TSNRP has provided a three-day grant management workshop for newly funded Principal Investigators; and, since 2001, Project Directors have been included. The workshop is designed to provide education on Federal, DoD, and USU regulations and requirements, as well as practical information on managing a research grant. Presentations at the 2003 workshop included didactics, case studies, and small group discussions in areas such as: grant agreement regulations and cost principles; Federal and local Institutional Review Board (IRB) requirements; research integrity; copyright laws; ethics in research; the investigator role and responsibilities; assistance visits; reporting requirements; and, budget management. The workshop provides an opportunity for investigators to meet the TSNRP staff and to establish a working relationship; it can also be a venue for the investigators to network with other military nurse researchers from their own and other Services. Comments from the 2003 workshop participants indicated that the three-day workshops are well received by the TSNRP investigators: *Outstanding!... Wonderful information.... Lots of good tips for the PIs... I feel that I know so much more about the entire process after attending the workshop... I learned an*

amazing amount about the grant process... I feel eager to start and have a much firmer grasp of what needs to be done and in what order.

Grant Management. Two full-time grant managers provide routine monitoring and timely assistance for over 60 active research grants. Investigators receive assistance from the TSNRP grant managers for a myriad of issues such as: requests for changes in research design and study personnel; additional funding and extensions to the study period; disposition of equipment; monitoring and tracking regulatory compliance and human subject protection training; and, reviewing the progress of research projects.

2003 Research Findings.

Army Beneficiary Experiences and Expectations for the Military Health System. A TSNRP-funded study in 2000 examined Army beneficiary experiences with, and expectations for, the Military Health System (MHS) in an attempt to provide information for improving patient satisfaction in the future. Focus groups and individual interviews were held within two TRICARE regions. Regardless of the region, beneficiary status, or delivery option, considerable discrepancy existed between what Army beneficiaries experienced in the MHS and what they expected. For example: 1) there were many roadblocks reported to getting care, such as the telephone/appointment system; 2) TRICARE information sources were often inconsistent, which confused the beneficiaries; 3) active duty personnel sometimes had a difficult time accessing care given the conflict between the hours during which care was offered and the demands of training; and, 4) patients wanted to be treated with individual importance but felt as though care was provided in an *assembly-line* manner. Army personnel who were not involved with the study indicated that the findings accurately portrayed their experiences in the MHS, suggesting the findings were relevant beyond the study participants. Additionally, individuals from the Navy and Air Force also stated that the findings, in some cases, mirrored their experiences, which indicates the potential use of this information by other Branches of the Services and the TRICARE Management Activity. ***Findings from this study illuminate countless targets of opportunity for ways to improve the delivery of care for military beneficiaries,*** as well as for the TRICARE insurance plan.

Experiences of Navy Nurses Assigned to Carriers. Another study funded during 2000, examined the experiences of Navy nurses who were assigned to carriers. *The results of this study were instrumental in determining the placement of additional critical care nurse billets on vessels at sea.*

The Use of Dopamine in Intensive Care Units. Often, patients in intensive care units (ICU) have difficulty breaking from mechanical ventilation because the diaphragm, the major muscle used for breathing, does not work properly. A study, funded by the TSNRP in 2002, is investigating why a commonly used ICU drug, *dopamine*, helps the diaphragm to work better and specifically how the drug prevents damage to the DNA of the diaphragm. The nurse researcher has produced the first images of diaphragm DNA. The diaphragm DNA will help to determine if the muscle is damaged; and, thus it will determine, at the molecular level, the effects of dopamine on the diaphragm. This *cutting edge*

research should provide valuable information to clinicians who are treating patients with diaphragm-related problems.

Dissemination of Research Findings.

Publications. During 2003, 12 publications from TSNRP-funded research appeared in peer-reviewed journals, to include: Heart and Lung; the Journal of Traumatic Stress; Military Medicine; Oncology Nursing Forum; the Journal of Infusion Nursing; Neurological Research; Endocrine Research; Nursing Forum; Neuroscience Research; and, Nurse Practitioner.

The June 2003 issue of Critical Care Nursing Clinics of North America was dedicated to *Military and Disaster Nursing*; and, it was edited by one of the TSNRP investigators. Ten TSNRP-funded investigators contributed nine of the fifteen articles in this specific issue. One article, *Care of the Critically Ill Patient in a Military Unique Environment: A Program of Research*, describes three areas of interest: the TSNRP, which is the only funding source specific to military nursing research; the Air Force Nursing Program of Research located at the Wilford Hall Medical Center; and, examples of Air Force and military unique nursing research studies. A second article, *Preparing to Respond: Joint Trauma Training Center and USAF Nursing Warskills Simulation Laboratory*, reported on a TSNRP-funded study that consisted of: training and evaluating nurses on their ability to perform required competencies in a state-of-the-art simulation laboratory; the completion of a cognitive examination; and, a self-assessment.

Presentations. More than 40 papers and posters of TSNRP-funded research were presented at major research and clinical conferences throughout the United States and abroad, to include the following: the ***14th Sigma theta Tau International Nursing Research Congress***, held at St. Thomas in the United States Virgin Islands; the ***36th Annual Communicating Nursing Research Conference*** held at the Western Institute of Nursing in Phoenix, Arizona; the ***109th Meeting of the Association of Military Surgeons of the United States (AMSUS)*** in San Antonio, Texas; the ***7th Annual National Conference on Cancer Nursing Research*** held in San Diego, California; the ***37th Biennial Convention of the Sigma Theta Tau International*** held in Ontario, Canada; the ***Southern Nursing Research Society Conference*** held in Orlando, Florida; the ***16th Annual Pacific Nursing Research Conference***; the ***2003 Uniformed Nurse Practitioner Association Conference*** held in Anaheim, California; the ***2003 National Teaching Institute and Critical Care Exposition*** held in San Antonio, Texas; the ***2003 Vermont Nurses Association Annual Convention*** held in Killington, Vermont; the ***Nursing 2003 Symposium*** held in Orlando, Florida; and, the ***2003 Joint New Parents Conference*** in New Orleans, Louisiana. Of the 80 abstracts selected for presentation at the ***15th Annual Karen Reider Poster Session*** held during the 109th AMSUS meeting, twenty-five percent were presented by TSNRP-funded research.

The Federal Nursing Service Award. **CAPT Felecia Rivers, AN, USA**, received the Federal Nursing Service Award during the 109th Meeting of the Association of Military Surgeons of the United States in San Antonio, Texas. The Federal Nursing Service Award is presented to the professional nurse from the Federal Nursing Services who has submitted an essay on the results of a study or a scholarly paper that will have an impact on nursing. CAPT Rivers' essay entitled, *Competency Skills of United*

States Army Personnel: Continued Development of a Conceptual Foundation, was based on her 2002 TSNRP-funded study, *Identifying Competency Skills of PROFIS Personnel*.

Research Utilization/Evidence-Based Practice. Regional nursing research groups were created during 2001 through the TSNRP Resource Center. These regional nursing research groups, termed PODs, are located across the United States and Hawaii and are led by doctorally-prepared military nurse scientists. The Research PODs objectives are to: 1) facilitate military nursing research across the Services; 2) provide mentorship to master degree-prepared nurse researchers; 3) support programs of nursing research within and across Services and Military Medical Centers; 4) share research resources; 5) foster research; and, 6) facilitate utilization of research findings in practice. The TSNRP supports the integration of evidence-based practice into nursing practice. To that end, ***evidence-based practice was the focus of POD activities during 2003.*** This three-year initiative was designed to increase the use of evidence-based practice in the MHS by changing both individual nursing practice and organizational practice. Specific evidence-based practice activities include the following: ***The Northeast POD:*** The Walter Reed Army Medical Center (WRAMC), the National Naval Medical Center (NNMC) Bethesda, and the Naval Medical Center at Portsmouth received funding to facilitate the TSNRP initiative to collaboratively develop an evidence-based nursing practice project. The three facilities partnered to work out a three-year plan to train a core team of advanced practice nurses in the development and implementation of evidence-based practice guidelines. Evidence-based practice guidelines, currently in development, include: prevention and care of pressure ulcers; prevention and care of deep vein thrombosis/pulmonary embolism; enteral feedings and tube care; acute adult inpatient pain assessment; central line management; and, thermoregulation of infants. These guidelines eventually will be available to other facilities for adaptation; ***The Southern Research POD:*** The Southern Research POD is a collaborative effort between the Wilford Hall Medical Center and the Brooke Army Medical Center. This activity implemented guidelines for ventilator-associated pneumonia in five ICUs at the two medical treatment facilities. The use of these guidelines should result in a reduction of infection rates and the length of stay, along with the associated costs; and, ***The Southeast POD:*** The Southeast POD provided a continuing education program, which introduced evidence-based practice models to senior nurse executives from one Navy and two Air Force hospitals. It was followed by a two-day workshop on the essentials of evidence-based practice.

Future Direction. The future of military nursing research is largely in the control of the military nursing community. ***Advancing the practice of military nursing and its response to the requirements of military readiness and deployment remains both the mission and the priority of military nursing research.*** The TriService Nursing Research Program serves as a catalyst for stimulating the synergistic endeavors between the three military nursing Services in both the Active and Reserve Components, to advance the science of military nursing. For the Year 2004 and beyond, the TriService Nursing Research Program *stands ready* to support those endeavors.



III. OPTIMIZATION

Four USU programs generated over \$29.3 million of cost avoidance for the Department of Defense during 2003: 154 USU faculty members provided 147,607 hours of clinical and consultative services at military treatment facilities (MTFs) for a documented cost avoidance of \$12,190,375; USU Office of Continuing Education for Health Professionals (CHE) sponsored continuing medical education for 719 activities with an attendance of 5,208 physicians; provided continuing nursing education for 62 activities for 1,378 nurses; and approved 25 programs of Category II (non-ACHE) continuing education credit for 480 members of the American College of Healthcare Executives for a documented cost avoidance of \$2,653,448; the USU Military Training Network (MTN) generated a documented total of \$13,007,208 in cost avoidance by facilitating DoD's ability to provide essential medical readiness training for over 223,735 defense personnel; and, the USU Graduate Education Programs generated \$1,430,000 of cost avoidance when 41 uniformed officers received advanced degrees (37 Masters Degrees and 4 Doctoral Degrees) from the University.

- USU Cost Avoidance Fact Sheet, May 31, 2003.

It is gratifying to see the University provide continuity and leadership for ensuring medical readiness. Alumni are highly trained and will no doubt continue their tradition of providing first-rate Military Health System support. The Cost Avoidance Fact Sheet is further evidence of your commitment and dedication.

- General Richard B. Myers, Chairman, Joint Chiefs of Staff, Letter to USU, November 20, 2003.

And, as provided to the Congress during 2002, the median length of non-obligated service for physician specialists in the Military Health System, not including USUHS graduates, is 2.9 years; however, the median length of non-obligated service for USUHS graduates is 9 years. Thus, USUHS graduates are exceeding the original expectations of Congress when the University was established, ensuring physician continuity and leadership for the Military Health System.

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy, Testimony before the Senate Appropriations Committee, Subcommittee on Defense Health, April 30, 2003.**

Policy-makers need to consider the costs and benefits for each accession source. For example... their better retention makes USUHS the most cost-effective accession source for filling 0-6 grade requirements in the Military Health System.

- Life-Cycle Costs of Selected Uniformed Health Professions, Phase II, The Impact of Constraints and Policies on the Optimal-Mix-of-Accession Model, Center for Navy Analysis, April, 2003.

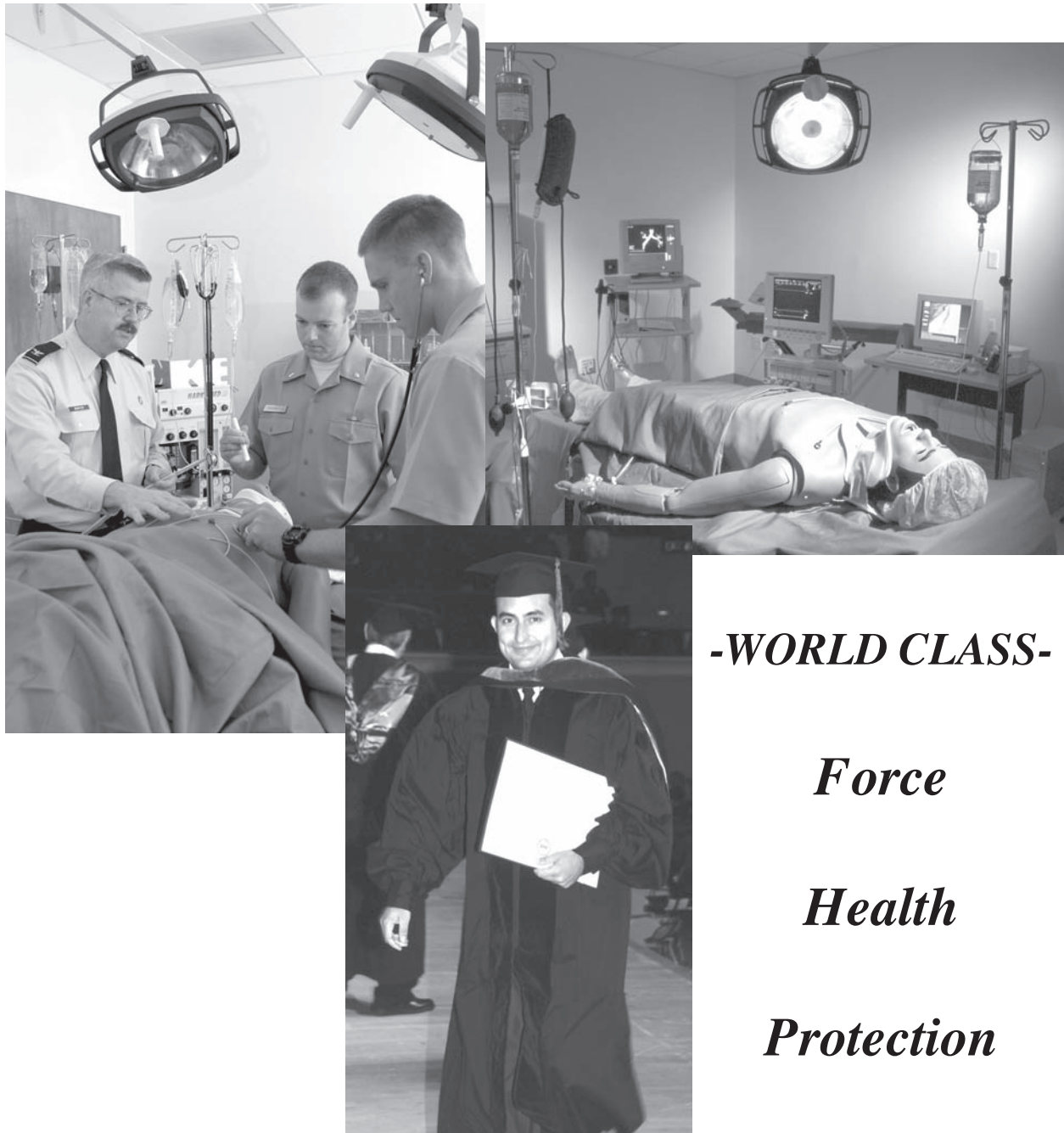
I wish to convey my congratulations to Dr. Abdellah and the entire staff of the Graduate School of Nursing of the Uniformed Services University of the Health Sciences. Your Outstanding performance was recently recognized by the National League for Nursing Accrediting Commission (NLNAC), in the report granting continuing accreditation for an impressive eight additional years. I am particularly gratified by the following statement: “This program provides an outstanding model for preparing advanced practice nurses for military service and care of patients in crisis and disaster situations. This program is on the cutting edge of cost effectively incorporating advanced technology into the curriculum and instruction process to produce a highly competent practitioner. This program can serve as a model to advance nursing education, practice and scholarship as nursing moves into care of the global community.” The NLNAC conducted an exhaustive review before coming to the above conclusion, reviewing many documents, attending classes, and interviewing numerous staff, students, and other stakeholders. One of the latter groups, the Federal Nursing Chiefs, was particularly complementary: “We are excited to see the quality of the students who graduate from this program... they are exceptional leaders.” This is a truly outstanding review of the school, which reflects great credit upon your entire staff and our Military Health System. Congratulations to all for a job exceptionally well-done!

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense, Health Affairs, Letter to USU, January 24, 2002.**

Thank you for the letter and copy of the 2000 Edition of the Uniformed Services University of the Health Sciences (USUHS) Journal and fact sheet. Military medicine faces unprecedented challenges to our world-class quality health care system. USUHS continues to pioneer cost-avoidance strategies and efforts, while producing top-rate providers and improving military health benefits.

I applaud your efforts in this important area and support the initiatives to make military medicine the standard by which all others are measured.

- General Henry H. Shelton, Chairman of the Joint Chiefs of Staff, Letter to USU, July 24, 2001.



-WORLD CLASS-

Force

Health

Protection

III. THE GRADUATE SCHOOL OF NURSING

For military health care providers, “the fight” is different. They must be prepared to care for the sick, save lives, and beat the odds in severe environments. Many people think those odds are diminished severely after an injury on the battlefield. But, with the right preparation in operational readiness, nurses and physicians can make the difference.

- Nursing Spectrum, *Caring for Those in Harm’s Way*, Volume 13, No. 6DC, March 24, 2003, page 8.

ESTABLISHMENT

Legislative and DoD Direction. The establishing legislation of the University, the Uniformed Services Health Professions Revitalization Act of 1972 (Public Law 92-426), and DoD Directive 5105.45, both direct that USU must meet the requirements of medical readiness and expand to meet the future needs of the Uniformed Services. In accordance with those directives, the Graduate School of Nursing (GSN) was established at USU. During the Fall of 1992, the Department of Defense received the authority, along with an appropriation, to begin planning for the implementation of a nurse practitioner education program at USU. The intent of the legislation was to meet the needs for advanced practice nurses in the Uniformed Services (the Army, Navy, Air Force, and the United States Public Health Service (USPHS)). The Federal Nursing Chiefs initially identified the need for advanced practice nurses in two areas: Family Nurse Practitioner and Nurse Anesthesia. In 1993, Congress directed the initiation of a demonstration program for the preparation of family nurse practitioners for the Uniformed Services. By February 26, 1996, the GSN had received official approval and recognition from the Office of the Assistant Secretary of Defense for Health Affairs.

GSN Meets Legislative and DoD Mandates. In compliance with Congressional legislation and in direct response to the needs of the Federal Nursing Chiefs and the Uniformed Services, the GSN initially established a Master of Science in Nursing Degree Program with two options in Nurse Anesthesia and Family Nurse Practitioner. These two GSN options were implemented to alleviate shortages of health care providers in the Uniformed Services, as identified by the Federal Nursing Chiefs. Graduates receive the Master of Science in Nursing (MSN) Degree and are qualified to test for national certification in their specialties.

The first students were admitted into the GSN Family Nurse Practitioner option in August of 1993; and, the first students matriculated into Nurse Anesthesia in June of 1994. Family Nurse Practitioner has had nine graduating classes from 1995 through April of 2004, for a total of 96 graduates; Nurse Anesthesia has had eight graduating classes beginning with the Class of 1996 through the Class of 2003 for a total of 104 graduates. The GSN Master Completion option has had a total of 7 graduates. Thus, from its first graduation in 1995 through April of 2004, a total of 207 MSN Degrees have been granted

by the USU GSN. GSN alumni have excelled in achieving national certification, with greater than a 97 percent pass rate on the first attempt. *Of note, all of the ten USU Nurse Anesthesia graduates passed the certification examination on the first attempt during 2003; of those, seven received perfect scores.*

Today, the GSN is unique among the Nation's nursing programs as it educates students to support the health care mission of the Military Health System (MHS) during peace, war, disaster, and other contingencies. GSN students are prepared to contribute to the peacetime health care delivery systems of the Uniformed Services and to provide unique support during combat operations, civil disasters and humanitarian missions; they are prepared to serve under austere and harsh conditions in field hospitals, on ships, and during air evacuations. For example, GSN alumni continue to support operations in South East Asia, the Persian Gulf, and the Balkans. The GSN curricula include an increased focus on leadership; and, rotations with senior health care executives provide opportunities for increasing the students' understanding of health care policy and for networking with uniformed and professional leaders. GSN alumni have published articles, presented at national conferences, completed post-graduate courses, and are enrolled in doctoral studies. Along with the GSN faculty, GSN alumni are recognized leaders within their specialties and actively participate in national and international nursing organizations.

To meet its legislative and DoD directives, the GSN's *internal community of interest* extends throughout the University. It includes the executive staff at USU and the students, faculty, research, and administrative personnel within the GSN and the School of Medicine (SOM). The GSN faculty and students provide meaningful contributions to USU committees and collaborate on projects throughout the GSN and the University. The Federal Nursing Chiefs represent one of the GSN's *external communities of interest*. The Federal Nursing Chiefs, serving as a Board of Advisors to the GSN since 1993, meet at least twice a year to provide and receive information on the GSN's curricula and program effectiveness. Information provided by the Service Chiefs is incorporated into the strategic planning process of the GSN during continuous review and revision of its mission, philosophy, objectives and curricula. (**NOTE:** The Federal Nursing Chiefs include representatives from the Army, Navy, Air Force, Public Health Service, and the Department of Veterans Affairs. The American Red Cross, although not a Federal agency, is an honorary representative on the GSN Nursing Board of Advisors.) The GSN's external communities of interest also include USU alumni, uniformed supervisors of GSN alumni, members of the uniformed and civilian nursing communities, the Departments of Defense and Veterans Affairs, and the United States Congress.

MISSION

The Accrediting commission pointed out in its summary findings to the University that the mission and philosophy of the USUHS Graduate School of Nursing (GSN) is grounded in the University's mission and in the mission of the Uniformed Services. The GSN Curriculum is designed to be specific to the unique mission of military service nurses: to serve in times of war and peace.

- **The Honorable Daniel K. Inouye, the United States Senate, Congressional Record, *Tribute to Dr. Faye Glenn Abdellah*, May 15, 2002, pages S4488-S4489.**

Mission Direction. The Mission Statement for the GSN is derived from the overall Mission Statement of the University and is in compliance with DoD Directive 5105.45. The *initial mission* of the GSN included five major objectives: 1) the GSN is dedicated to providing quality education to prepare advanced practice nurses, at the graduate level, in the specialties of Nurse Practitioner and Nurse Anesthesia; 2) the GSN must produce graduates who are both qualified for, and dedicated to, the delivery of primary care (acute and chronic care), including anesthesia services, to active duty members of the Uniformed Services, their families, and all other eligible beneficiaries during peace, war and other contingencies; 3) the GSN is also directed to provide the Nation with graduate nursing professionals who are willing to commit themselves to a career of service in the Department of Defense and the United States Public Health Service; 4) the GSN must serve the Uniformed Services and the Nation as an innovative, responsive program with a world-wide perspective for leadership, education, research, and service; and, 5) the GSN must develop advanced practice nurses, with unique experience and skills, who can respond to the special requirements of the Uniformed Services for disaster relief, humanitarian intervention, and military readiness.

Today, the mission of the GSN is in full compliance with the goals of the Assistant Secretary of Defense for Health Affairs. The GSN remains dedicated to providing a quality and unique education that prepares nurses to deliver care and services to all beneficiaries of the Uniformed Services during peace, war, and other contingencies. The GSN faculty and staff provide the Nation with graduate nursing professionals dedicated to a career of service for the Department of Defense, the USPHS, and other Federal Health Systems.

Mission Accomplishment.

The University's academic programs are consistent with its mission. In particular, the Team notes, the professionalism of the programs, the objectives to develop the student's intellectual and leadership skills, which are prerequisites for strong foundations in medicine, nursing, the biomedical sciences and public health services, and the credentials of the faculty.

- **Evaluation Team of the Middle States Commission on Higher Education, Report to the Faculty, Administration, Trustees, Students of the Uniformed Services University of the Health Sciences, April 2, 2003; accreditation was granted to the University through 2013.**

In the short time since 1993, and with the strong cooperation and support of the Federal Nursing Chiefs, the GSN has: 1) recruited a qualified faculty; 2) successfully established curricula for the Family Nurse Practitioner, Nurse Anesthesia, and Perioperative Clinical Nurse Specialist options in its MSN Program; 3) identified accredited clinical practice sites and completed memoranda of understanding (MOUs) for those relationships with 21 military treatment facilities (MTFs) to include an additional 111 non-DoD, Federal, and civilian clinical sites; 4) developed and implemented an administrative structure that provides for faculty and student participation in the overall governance of the GSN; 5) submitted self-studies and received maximum terms of accreditation for its MSN Degree Program from three professional accrediting entities (status of recent accreditations follows); 6) received approval from Health Affairs, Office of the Secretary of Defense, on February 26, 1996; 7) initiated, implemented, and continuously reviewed the outcomes evaluation process for its academic program; for example, seven of the ten graduates of the Nurse Anesthesia Program in 2003 scored a perfect 600 on the Council on Certification of Nurse Anesthetists Certification Examination; 8) initiated curricula and governance reviews; 9) collaborated with the Department of Veterans Affairs and utilized new technology to establish distance learning options, which resulted in the DoD's first virtual graduation at the advanced level; 10) established a Doctoral Program in Nursing Science with the enrollment of its Charter Class in the Fall of 2003; and, 11) as of April 2004, granted Masters of Science in Nursing Degrees to 207 advanced practice nurses (to include 7 MSNs granted through distance learning) with over 80 percent of its graduates remaining on active duty.

The Implementation of two Post-Master Options. In addition to the establishment of its two traditional MSN Program options of Family Nurse Practitioner and Nurse Anesthesia, the GSN has also implemented a Post-Master Family Nurse Practitioner Certificate option and the Department of Veterans Affairs (VA)/Department of Defense (DoD) Post-Master Adult Nurse Practitioner (ANP) Distance Learning Program . The Post-Master Family Nurse Practitioner Certificate option began in 1999, primarily in response to, and in support of, the decision by the Army Nurse Corps to transition from a specialty nurse practitioner to a family nurse practitioner focus. During the transition, the number of students varied, resulting in the awarding of two to four certificates per year; as of April 2004, a total of 15 Post Master Certificates have been granted.

The VA/DoD ANP Certificate Program was initiated in collaboration with the Department of Veterans Affairs (VA). The VA had identified a requirement to increase its number of adult nurse practitioners throughout its health care system, which included approximately 173 Medical Centers and 771 ambulatory care and community-based clinics. The student body was composed of civilian VA employees who maintained their full-time responsibilities at the VA facilities while participating in the program. The curriculum incorporated video teleconferencing technology as the primary teaching tool, with faculty conducting GSN-designed, lecture-based instruction. Students participated from VA medical centers located across the United States, Puerto Rico, and the United States Virgin Islands; following the third graduation in May of 2003, the GSN had awarded a total of 70 certificates (this program is covered in more detail at the end of this section of the Journal).

The Development of a Clinical Nurse Specialist Option.

Background. The first Clinical Nurse Specialist Program was established in 1954 at Rutgers University; it was designed to prepare nurses at the Master Degree level who would be dedicated to improving patient and family care in the face of significant technologic advances in cardiac and pulmonary surgery. Early Clinical Nurse Specialists were known by a variety of titles, including *nurse clinician*, *clinical associate*, *liaison nurse*, *clinical supervisor*, and *clinical nurse specialist*. By 1970, the core function of the role of the Clinical Nurse Specialist was identified as a graduate-prepared nurse who was able to: 1) assess the nursing needs of patients and develop nursing care plans based on the knowledge of nursing, medical, biological, and social sciences and generally direct the provision of nursing care in the patient unit; 2) consult with others, as needed, and make appropriate use of available administrative and organizational channels in support and maintenance of nursing performance; 3) establish and evaluate standards of clinical nursing practice in a unit; 4) teach patients and nursing staff in a unit how to improve clinical outcomes; and, 5) introduce nursing practice innovations and refine nursing procedures and techniques and investigate specific nursing practice problems.

Today, there are approximately 58,000 clinical nurse specialists in the United States. They provide care in a variety of clinical specialties in both in-patient and out-patient settings. According to the Division of Nursing, National Sample Survey of Registered Nurses, Clinical Nurse Specialists employment breaks down as follows: *50.3 percent - Hospitals* (24.4 percent have no direct patient care and work primarily in staff development and administration; 46.6 percent work as part of in-patient units; 19.1 percent work as part of out-patient units; and, 9.8 percent work in ‘other patient care areas’); *19.5 percent - Nursing Education*; *13.4 percent - Community Health*; *9.5 percent - Ambulatory Care*; and, *7.3 percent - Other* (Private Industry, Pharmaceuticals, etc.).

In June of 2001, the Federal Nursing Chiefs identified a need for a Clinical Nurse Specialist (CNS) option in the GSN Master of Science in Nursing Program. A feasibility study and the development of a pilot program were completed and accepted by the Federal Nursing Chiefs. In January of 2002, **Founding Dean Faye Glenn Abdellah** and the GSN Associate Dean presented the CNS option to the USU Executive Committee; that request was approved by the Surgeons General of the Army, Navy and Air Force. The CNS option was then approved by the USU Board of Regents during its meeting held on February 27, 2002. And, the GSN welcomed its Charter Class of eight students in the GSN Perioperative CNS option in June of 2003.

The Development of a Doctoral Program in Nursing. To meet an evolving requirement for nursing research relevant to the MHS, the USPHS, and other Federal Health Systems, in March of 2002, with the support of the Federal Nursing Chiefs, the GSN began the process for the development of a Doctoral Program in Nursing. The GSN Doctoral Program will prepare nurses to be uniquely qualified as leaders in research, education, and clinical practice and to serve in the MHS, USPHS, and other Federal Health Systems. In the context of concerns over patient safety, nursing research must be conducted to assess the linkages between nurse staffing, safety, and outcomes assessment throughout the TRICARE Management Activities. Additionally, with the well-recognized national shortage of both staff nurses and nursing faculty, GSN doctoral graduates will be prepared to augment faculty requirements in educational settings and to provide researchers for studying health care in the MHS, USPHS, and other Federal Health Systems.

In June of 2002, following the arrival of the new GSN Dean, **Patricia A. Hinton Walker, Ph.D., RN, FAAN**, parallel planning was initiated to review the existing curriculum to ensure the supportability of new programs. Following an analysis of capabilities, a curriculum was designed that would be responsive to the Federal Nursing Chiefs and flexible enough to easily adapt to the changing requirements of the Uniformed Services. The Doctoral Program in Nursing Science includes a common core of required courses and electives. The program consists of five areas of concentration: 1) *Nursing Knowledge*; 2) *Research Methods, Statistics, and Designs*; 3) *Cognate Courses*; 4) *MHS and Federal Health Care Policy and Issues*; and, 5) the *Dissertation*. Dean Hinton Walker presented the GSN Doctoral Program to the USU Board of Regents and received formal approval for the establishment of the Doctoral Program at the BOR meeting held on October 24, 2002. In addition, the GSN held inclusive focus sessions during 2003 to determine both the interest and support for its proposed doctoral program from doctorally-prepared nurses serving in the Uniformed Services, the Department of Veterans Affairs, and other Federal agencies. The Charter Class was enrolled in the Fall of 2003.

GSN Nursing Philosophy.

I pledge myself to faithfully practice the profession of nursing. I recognize that with higher learning comes greater responsibility: first and foremost, to those placed in my care; to the advancement of nursing science; and, to the promotion of the nursing profession. I will strive for personal and professional growth through empirical knowledge and within the highest moral and ethical standards of research. I will remember the long and prestigious traditions of nursing, dating from the early battlefields to the diverse professions of today; and, upon this foundation, I am called to build. Whether caring for those in my own country or in a foreign land, I will not compromise their safety or dignity, but instead will care for them within the highest standards and practices of my profession.

- From the Oath taken by each new class of students at the GSN; the oath, developed by the Student Advisory Committee with input from the Federal Nursing Chiefs, was revised during the 2002-2003 Academic Year.

The philosophy of the GSN conforms to the mission and goals of the USU Strategic Plan. The GSN philosophy is built on a foundation of nursing theory, research, and advanced practice, which fosters critical thinking and a vision for the future health care requirements of the Uniformed Services. The GSN community believes that graduate nursing education builds on the foundation of the undergraduate nursing education already completed by the uniformed students. With that in mind, the GSN provides the Nation with nurses prepared at the Master Degree level, who pursue learning experiences that will increase the breadth and depth of their knowledge base and enable them to specifically address the special needs of uniformed health care. The GSN prepares its students for collaborative and autonomous advanced practice roles with an emphasis on: health promotion and disease prevention (readiness); management and delivery of primary health care to families and individuals across the life span; case management for the chronically and stable acutely ill; anesthesia service; administration; and, unique expertise in emergency preparedness and military medical/nursing humanitarian assistance. Also, GSN students achieve an advanced level of knowledge to perform and provide leadership as uniformed officers in a joint service environment. And finally, GSN graduates are prepared to participate in research or studies that will advance the Uniformed Health Profession and improve the practice of nursing as well as the welfare of patients throughout the Uniformed Health Systems.

ACCREDITATION

Accreditation Granted by the National League for Nursing Accrediting Commission.

The Uniformed Services University of the Health Sciences Graduate School of Nursing (GSN) has met and exceeds all criteria for continuing accreditation. This program provides an outstanding model for preparing advanced practice nurses for military service and care of patients in crises and disaster situations.

- **The National League for Nursing Accrediting Commission**, Final Report dated March 18, 2002; accreditation was granted to the GSN for the maximum term of eight years.

Background. The Commission on Higher Education of the Middle States Association of Colleges and Schools accredits the University. The GSN is accredited by the National League for Nursing Accrediting Commission (NLNAC) and the Commission on Collegiate Nursing Education (CCNE). In addition to accreditation from the NLNAC and the CCNE, the MSN option in Nurse Anesthesia is also accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs (COA); and, the MSN Family Nurse Practitioner option meets, or exceeds, all standards established by the National Organization of Nurse Practitioner Faculties (NONPF).

In December of 1996, the USU GSN Master of Science in Nursing Degree Program was evaluated for accreditation by the National League for Nursing (NLN) Board of Review for Baccalaureate and Higher Degree Programs. The NLN Board of Review voted to grant accreditation to the USU GSN Master Degree Program and scheduled its next visit for reaccreditation during 2001; during 2000, the GSN began the preparation for its required self-study and site-visits.

Site Visit and Final Report of the NLNAC Site Surveyors. On October 30 through November 1, 2001, Site Surveyors from the National League for Nursing Accrediting Commission (NLNAC) visited the USU GSN. The following excerpt is taken from the final report of the NLNAC:

The accreditation visit was announced directly to the Nursing Chiefs of the United States Army, Navy, Air Force, and Public Health Service, who disseminated this information through written memoranda and verbal comments to staff at respective hospitals and installation sites. The Federal Nursing Chiefs met with the program evaluators and gave testimony to their support of the GSN. Comments during the meeting with the Federal Chiefs included: 1) we are excited to see the quality of the students who graduate from this program... they are exceptional leaders; 2) we are directly involved in helping the School understand the type of skills graduates need and find them very responsive to our suggestions; and, 3) we are pleased to see that more faculty are completing doctoral degrees and support the actions taken by the Dean to give faculty release time to make it possible for them to accomplish this goal.

In addition to meeting with the Federal Nursing Chiefs, the NLNAC also interviewed 17 individuals who represented the senior leadership at the University. Group conferences were held with the GSN faculty, the GSN Dean's Council, the GSN students, and the Nursing Chiefs of the Branches of the Uniformed Services and their Deputies. Reviewers attended numerous GSN classes, which included Neuroscience II, Basic Principles of Nurse Anesthesia Practice, and Advanced Health Assessment. Six agencies and USU facilities were visited: the Walter Reed Army Medical Center; the National Naval Medical Center's Family Practice Clinics; the National Capital Area Medical Simulation Center (SIMCEN); the Anatomical Teaching Laboratory at USU; the USU Learning Resource Center; and, the Silver Spring Office Complex of the GSN.

A thorough review of documents included: Policy and Precedent Statements; the VA/DoD Post-Master Adult Nurse Practitioner Distance Learning Program: From Concept to Graduation; the 2000 Edition of the USU Journal; the Program for Design Notebook for the proposed construction at the USU campus; the alumni survey tool and data summaries; the GSN Strategic Plan; Dean Abdellah's Curriculum Vita; Curriculum Vita for the entire GSN faculty; course syllabi and random selections from both the Family Nurse Practitioner and Nurse Anesthesia options; examples of students' scholarly projects; clinical site information; the GSN budget; most recent accreditation and approval reports; minutes from the GSN Faculty Council and Corps Chiefs Meetings; committee reports from the GSN Evaluation, Student Promotion, Student Advisory, and Admissions Committees; and, extensive course materials.

In a letter to the USU President, dated January 24, 2002, **the Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs**, noted:

I wish to convey my congratulations to you, Dr. Abdellah, and the entire staff of the Graduate School of Nursing of the Uniformed Services University of the Health Sciences. Your outstanding performance was recently recognized by the National League for Nursing Accrediting Commission (NLNAC) in its report granting continuing accreditation for an impressive eight additional years. I am particularly gratified by the following statement: This program provides an outstanding model for preparing advanced practice nurses for military service and care of patients in crisis and disaster situations. This program is on the cutting edge of cost effectively incorporating advanced technology into the curriculum and instruction process to produce a highly competent practitioner... This is a truly outstanding review of the school, which reflects great credit upon your entire staff and our Military Health System. Congratulations to all for a job exceptionally well done!

Notification of Maximum Accreditation. On March 18, 2002, the Dean of the GSN was formally notified of the action taken by the National League for Nursing Accrediting Commission at its meeting held on February 27, 2002: **"The Commission approved the Master Degree Program for continuing accreditation and scheduled the next evaluation visit for the Fall of 2009."** Patterns of strength affirmed by the Commission were identified as follows: the mission of the GSN; the Dean's exemplary leadership and expertise; and, the learning resources. The rationale for granting accreditation for the maximum of eight years was provided in the NLNAC final report:

The Uniformed Services University of the Health Sciences GSN has met and exceeds all criteria for continuing education. This program provides an outstanding model for preparing advanced practice nurses for military service and care of patients in crises and disaster situations. This program is on the cutting edge of cost effectively incorporating advanced technology into the curriculum and instruction process to produce a highly competent practitioner. This program can serve as a model to advance nursing education, practice and scholarship as nursing moves into care of the global community.

Accreditation Granted by the Commission on Collegiate Nursing Education.

Background. The American Association of Colleges of Nursing (AACN) Commission on Collegiate Nursing Education (CCNE) has implemented an accreditation process for nursing programs. The GSN prepared and submitted material to meet the CCNE requirements for preliminary accreditation (a special accreditation for programs that had already received recent national accreditation from other organizations such as the NLN). The GSN material was accepted and the AACN/CCNE granted preliminary accreditation on February 27, 1998. A site visit was scheduled by the CCNE for November of 2001.

Site Visit and Final Report of the CCNE Evaluation Team. On November 14 through 16, 2001, the CCNE Evaluation Team visited the USU GSN. The following excerpts were taken from the final CCNE report:

The GSN faculty members are responsive to the needs of the Federal Nursing Chiefs of the Uniformed Services and are willing to work on program modifications suggested by this external community of interest... Communication between the GSN faculty and the Federal Nursing Chiefs is enhanced by monthly teleconferences and semi-annual meetings. In addition, the GSN has an accreditation committee that works to ensure that consistency and congruence between mission, philosophy, and goals/objectives occur within each program. Students described responsiveness of the faculty in assisting them to meet the objectives of the program and in making alterations as necessary in compliance with the mission of the school and university.

Faculty members have extensive opportunities to participate in the governance of the USU GSN. Faculty identified professional and collegial collaboration between all military and civilian GSN faculty, as well as other faculty at the University level... USU provides a supportive environment for teaching, research, service, and practice... Support is given to faculty for development in areas such as time for clinical practice, service to national organizations, and pursuit of doctoral education... All faculty interviewed articulated an overwhelming commitment to the GSN, the students, and their jobs. They describe a genuine happiness with coming to work each day and preparing the best nurses for military service that can possibly be accomplished.

Students reported participation in GSN program decisions and open communication patterns with all GSN faculty. Their feedback is utilized, and the students reported that they are notified of program changes. Students were very articulate in describing the process used to provide input into program development. The GSN has an excellent educational environment with many state-of-the-art laboratory simulation rooms, library and resource materials, and technological support services. Most classrooms are equipped with technology such as computers or LCD players for PowerPoint presentations and Internet access. A state-of-the-art simulation center is available to the GSN and is equipped with 12 fully-equipped patient treatment rooms with computer, video, and audio equipment. In addition, the simulation center has a distance education teleconference room, a computer laboratory, and an operating room simulation laboratory with manikin simulators and anesthesia equipment, which mimics that used in the military field. Virtual reality anatomy lectures are cutting edge and are available for approximately four anatomic systems. GSN students interviewed verbalized knowledge of the many resources available to them on campus and had overwhelmingly positive comments about the laboratories, libraries, simulation center, and virtual reality programs available to them for study.

The inclusion of an interdisciplinary approach to course implementation and content delivery was evident by interdisciplinary team teaching and collaboration across departments. Opportunities to participate in health care delivery on a global scale are consistent with the mission of the university and the professional standards. Clinical experiences are in a variety of sites, all of which are accredited by JCAHO and COA. All clinical sites support the curriculum and course objectives and provide a variety of learning opportunities for clients across the lifespan. Many of the clinical sites are military-related and further support the socialization of the student into the role of the military Advanced Nurse Practitioner.

CCNE Evaluation Team Process. While visiting the GSN campus, the CCNE Evaluation Team had an opportunity to interview school and university officials, program faculty, clinical preceptors, students and other community representatives. During the site visit, the CCNE Evaluation Team also met with the Federal Nursing Chiefs in their capacity as the Board of Advisors to the GSN. As with the NLNAC evaluators, the Federal Nursing Chiefs once more expressed their strong endorsement and satisfaction with the graduates of the GSN. The Evaluation Team reviewed information provided in the self-study document, as well as other materials provided in the resource room, to include information requested by the Evaluation Team. In addition, the CCNE Team also observed classroom and clinical activities. The Evaluation Team reviewed and provided assessments on the following Standards for Accreditation: Mission and Governance; Program Quality - Institutional Commitment and Resources; Program Quality - Curriculum and Teaching-Learning Practices; and, Program Effectiveness - Student Performance and Faculty Accomplishments. The Evaluation Team's final report found that the GSN had met all Standards and all Key Elements of the Standards with no recommendations for improvement.

Notification of Maximum Accreditation. On May 16, 2002, the Dean of the GSN received official notification from the Commission on Collegiate Nursing Education that **“the CCNE Board of Commissioners acted at its meeting on April 20, 2002, to grant accreditation of the Master Degree Program in Nursing at the Uniformed Services University of the Health Sciences for a term of 10 years, extending to June 30, 2012.”** The next on-site evaluation is scheduled for the Fall of 2011. The following rationale was provided for the maximum accreditation of 10 years without recommendations:

At its meeting the CCNE Board determined that the program met all four accreditation standards. The Board additionally determined that there are no compliance concerns with respect to the key elements. The Commissioners express our best wishes as you proceed with tasks important to the future of your nursing program.

Maximum Accreditation Status Granted by the Council on Accreditation of Nurse Anesthesia Educational Programs.

The members of the Council on Accreditation of Nurse Anesthesia Educational Programs (COA) are pleased to inform the Uniformed Services University of the Health Sciences Graduate School of Nursing Nurse Anesthesia Program... that continued accreditation has been granted... Given this action of the COA, the program will be scheduled for its next consideration of continued accreditation in the Fall of 2013... Finally, the COA would like you to know that very few programs are not required to submit progress reports following an accreditation review and even fewer programs have achieved the maximum accreditation of ten years. Therefore, the members of the COA are particularly happy to offer their congratulations to everyone at the program who has demonstrated their commitment to meeting the requirements for continued accreditation.

- **The Council on Accreditation of Nurse Anesthesia Educational Programs (COA)**, Letter to the USU GSN, October 31, 2003.

In September of 2002, the Nurse Anesthesia Program embarked on a re-accreditation process. Under the leadership of the Re-Accreditation Task Force Co-Chairs, ***LtCol Paul Austin, USAF, NC, and CAPT Cynthia Cappello, NC, USN***, the self-study was prepared based on the new accreditation standards of the COA. As a result of the first revision in many years, the new standards *raised the bar* for Nurse Anesthesia Programs. The entire curriculum was reviewed, including the didactic and clinical phases. In April of 2003, the COA reviewers visited the USU campus and clinical sites at the Walter Reed Army Medical Center and the Wright-Patterson Air Force Base Medical Center in Ohio. The reviewers met with school and university officials, program faculty, clinical site personnel, students, and other community representatives. They also met with representatives of the Federal Nursing Chiefs in their capacity as the Board of Advisors to the GSN. All educational materials were reviewed as well as the physical plant and clinical activities. The reviewers' outbrief lauded the entire program.

Notification of Maximum Accreditation. In October of 2003, USU received notification that the Nurse Anesthesia Program had been awarded a ten-year accreditation, as ***the very first program in the Nation re-accredited under the new standards and the first to be granted the maximum ten-year re-accreditation.*** The COA commended the University for its excellent program and noted ***zero critical weaknesses.***

Self-Study Used as a National Example. The COA viewed the USU Nurse Anesthesia Program Self-Study as the benchmark for other programs. In 2004, officials from the COA requested permission to use the GSN Self-Study to guide and assist the seventy-seven other Nurse Anesthesia Programs in the United States in meeting the newly established COA standards.

Establishment of an Honor Society of Nursing at USU. The USU Graduate School of Nursing was informed during 1998, that it had been approved by Sigma Theta Tau to sponsor a Nursing Honor Society, with the intent of becoming a Member Chapter of Sigma Theta Tau International. The Honor Society was formally established during graduation exercises in 1999 to recognize the academic excellence of students, the clinical and educational acumen of preceptors, and the contributions of nursing leaders in the community. *Membership in Sigma Theta Tau is the hallmark of a committed nursing professional* and offers great rewards in terms of potential funding for nursing research, networking with professional colleagues, and professional advancement. The 139 members who have been inducted into the GSN Honor Society are representative of the GSN's diverse student body along with senior leaders in nursing from both the uniformed and civilian sectors. Over the past several years, the GSN Honor Society has co-sponsored a series of women's health programs at the Women in Military Service Memorial at the Arlington National Cemetery. In addition, the Honor Society sponsored a military nursing research colloquium.

The application for approval as a Chapter of the Sigma Theta Tau International Honor Society of Nursing was forwarded in the Fall of 2002; and, a site visit by a member of Sigma Theta Tau was conducted in April of 2003. Following the site visit and extensive review of the GSN Honor Society, the Sigma Theta Tau site visitor indicated that her recommendation to the Sigma Theta Tau Board would be positive. Consequently, after review by the Sigma Theta Tau Board and approval by the Sigma Theta Tau House of Delegates, the GSN scheduled a Sigma Theta Tau Charter Initiation Ceremony for a new Chapter on May 10, 2004.

MILITARY UNIQUE CURRICULA

The GSN Curricula Respond to the Special Needs of the Uniformed Services.

Background. The USU GSN is unique among the Nation's nursing programs because it educates students to treat and care for both civilian and uniformed personnel in peace, war, disaster, and other situations that occur under austere conditions. There is no other institution better positioned than the GSN to prepare nurses with research, education, and leadership expertise as required by the MHS, USPHS, and other Federal Health Systems. The GSN curricula have been driven by special requirements to meet the missions of the DoD and the USPHS. Common to the GSN academic curricula is subject matter relevant to military health care providers; for example, there are operational readiness components in each course. And, continuous consultation takes place with the Federal Nursing Chiefs during the ongoing development and review of the GSN curricula in order to ensure that the special needs of the Uniformed Services are being met by the GSN graduates.

Based on the Federal Nursing Chiefs' initial indications that the career advancement of their officers would be enhanced through the completion of a Master Thesis, the GSN examined the feasibility of the completion of a thesis within the time constraints of its programs. Following an assessment of multiple program components, including a review of the graduating students' research projects and faculty expertise, a Master Thesis, which would become an extension of the charter students' research projects, was made a requirement for all graduating students, beginning with the graduating Class of 1996. However, during 1999, following consultation with the Federal Nursing Chiefs, it was determined that the GSN students could now choose among several types of scholarly projects, which include: research culminating in either a written thesis or a publishable paper; a research practicum; and/or, a defined project. Whichever option is chosen, any scholarly project may be completed individually or as a group project. A GSN research committee ensures that each scholarly project meets the Uniformed Services University of the Health Sciences' requirements for a Master of Science Degree.

Another example of the GSN's continuous response to the Services occurred when the Class of 1995 GSN graduates and their uniformed supervisors recommended the inclusion of training for such requirements as suturing, basic laboratory testing, and triage. The GSN faculty agreed and incorporated those procedures into the appropriate GSN courses. The graduates from the Family Nurse Practitioner option also recommended the addition of Anatomy and Cell Biology into the curriculum, which occurred during 1999. And, at the recommendation of the GSN students and faculty, during 2000, objective clinical examinations using simulated patients were implemented throughout the core courses of the GSN MSN Program. Also, as discussed earlier, the GSN developed an MSN Degree option for a Clinical Nurse Specialist at the request of the Federal Nursing Chiefs.

The GSN also responds to the impact of the current nursing shortage across the Nation; its evolving programs at both the Master and Doctoral Degree levels serve as incentives for the retention of uniformed nurses in the MHS and USPHS to serve as practitioners, nurse educators, or researchers. A critical, nation-wide nursing shortage is no longer predicted as a possibility; it has arrived. The following information from the American Association of Colleges of Nursing captures the impact of the current nursing shortages on health care delivery and medical readiness in both the civilian and uniformed sectors of our Nation:

According to the latest projections from the United States Bureau of Labor Statistics published in the November 2001, Monthly Labor Review, more than one million new and replacement nurses will be needed by 2010. The United States Department of Labor projects a 21 percent increase in the need for nurses nation-wide from 1998 to 2008, compared with a 14 percent increase for all other occupations (<www.bls.gov>);

According to a survey by the American Association of Colleges of Nursing, *2000-2001 Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing*, nursing schools turned away 5,823 qualified applicants across the United States due to insufficient number of faculty, clinical sites, classroom space, clinical preceptors, and budget constraints. More than a third (38.8 percent) of schools, which responded, pointed to faculty shortages as a reason for not accepting all qualified applicants into entry-level baccalaureate programs (<www.aacn.nche.edu>);

Graduations from Master and Doctoral Programs in Nursing are decreasing, which translates into a smaller pool of potential nurse educators. According to AACN's *2000-2001 Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing*, graduations from Masters Degree Programs were down 3 percent; graduations from Doctoral Programs were down 11 percent (<www.aacn.nche.edu>); and,

Higher Compensation in clinical and private sector settings is luring current and potential nurse educators away from teaching. According to the *2001 National Salary Survey of Nurse Practitioners* completed by ADVANCE for Nurse Practitioners magazine, the average salary of a master-prepared nurse practitioner working in his or her private practice was \$78,217. In contrast, AACN reports that master-prepared nursing faculty across all ranks earned an average salary of \$54,980 (<www.aacn.nche.edu> and <www.advancefornp.com/npsalsurvey.html>).

Advanced Nursing Education in a Joint Service Environment. GSN Students are provided military unique education in the joint service environment of the University, which includes the Army, Navy, Air Force, and the United States Public Health Service (USPHS). Graduates are prepared to deliver care in a variety of settings and communities, both nationally and internationally. GSN graduates are equipped to contribute to the Uniformed Services' peacetime health care delivery systems and to provide military and public health support during combat operations, civil disasters, and humanitarian missions. They may serve in clinics or hospitals, the combat zones of theaters of operations under austere and harsh conditions, on Navy ships, or in isolated areas of the United States and other countries lacking health care providers. The GSN faculty and staff believe that the placement of the GSN within the interdisciplinary boundaries of the University is a distinct strength. The QuadService environment of the USU offers a unique blend of interactive didactic and clinical experiences that support the preparation of competent advanced practice nurses for service to the Nation during international conflict, in peacetime, and wherever humanitarian services and support for disaster relief are required. The multi-Service clinical practice sites of the GSN include: 21 military treatment centers (MTFs); and, 111 non-DoD, Federal, and civilian hospitals and primary care health care clinics generally located in the Washington, D.C. area.

GSN Students Understand the Structure of a Joint Environment. To meet the readiness requirements of the Military Health System, it is essential that professional health care officers are familiar with the structure of a joint environment. Under the leadership of the USU Brigade Commander and the GSN Commandant, the uniformed students, faculty, and staff assigned and reporting to the GSN participate in all activities and events as they would in any other command of the Uniformed Services. Regular military formations are held; physical fitness exercises, standards, and testing are adhered to; performance evaluations are completed; and, uniformed personnel in the GSN are trained in the appropriate uniformed programs and customs. The students of the GSN participate in joint-service educational experiences throughout the MSN Degree Program; and, as a result, they become familiar with the regulations, procedures, and vocabularies of the QuadServices' health care systems. The GSN Commandant provides mentorship and guidance related to leadership, military customs and traditions, administrative requirements, and protocols to all of the uniformed officers enrolled in the GSN.

Medical Readiness Training.

Because of the unique practice requirements for USU graduates as uniformed officers, the GSN faculty has included an additional terminal objective heading, "Readiness," not included in the American Association of Colleges of Nursing (AACN) "Essentials" document. *Readiness* was added to focus on specialized competency objectives encompassing the ability of the USU graduates to function during deployment or humanitarian health care circumstances. GSN terminal objective 6, which refers to the readiness of graduates to function during deployments or humanitarian health care circumstances, states that graduates will "adapt readily to changes in individual and environmental health care demands." To accomplish this objective, the GSN developed a core course, Operational Readiness, to provide mobility and field training. Lectures address the setup of field hospitals, the function and utilization of Navy hospital ships, aeromedical evacuation, and the use of telemedicine in the field.

- *IX, Graduate Education in Nursing*, Subcommittee Report, Middle States Association of Colleges and Schools (MSA) Self-Study, submitted in preparation for the 2003 site visit, pages 2 and 3.

As of April 2004, 73 students are enrolled on campus in the GSN (15 in the Family Nurse Practitioner Program; 8 in the Perioperative Clinical Nurse Specialist Program; 39 in the Nurse Anesthesia Program; and, 11 in the full-time/part-time Doctoral Programs). Seventy commissioned officers represent the Services as follows: Army - 22; Navy - 10; Air Force - 33; and, Public Health Service - 5. Two of the remaining students are sponsored by the Veterans Administration and one by the Agency for Healthcare Research and Quality. These GSN students receive operational medicine and military relevant material and training throughout the GSN curricula; as such, readiness is identified as

one of the GSN's outcome goals. The GSN program of study is designed to: prepare students to adapt readily to changes in individual, system, and environmental health care demands; provide safe care under austere conditions; and, be flexible in caring for patients with unusual clinical presentations through the use of available resources. The program of study for the students has evolved to include additional clinical hours to prepare the GSN graduates for an immediate transition to work settings in either fixed facilities or deployed environments. For example, since April of 2001, GSN students complete a two-day course on humanitarian assistance; the Medical Humanitarian Assistance Course is designed to prepare advanced practice nurses for deployment in support of disaster relief and humanitarian missions. Emergency conditions, such as natural disasters, usually involve a humanitarian component and require the commitment of the Uniformed Services, often under austere conditions. The course includes guest speakers who present information on the Federal Emergency Management Agency, Non-Governmental Organizations, chemical-biological warfare, ethics, and epidemiology. The GSN continuously expands its educational programs to address the changing nature or threats caused by weapons of mass destruction. In addition, GSN faculty were represented and participated in an International Coalition of Nursing Leaders that focused on the development of nursing curricula concerned with addressing the aftermath of weapons of mass destruction.

Preparing for the Battle.

As Army Nurse Corps officers in the USU Master Degree Family Nurse Practitioner Program, our education further prepares us to live out our motto - *Ready, Caring, Proud.*

Operation Bushmaster provided a scenario portraying a hostile environment. The week-long exercise (conducted in San Antonio, Texas) allowed for Advanced Practice Nursing and School of Medicine students to work together in a field environment under simulated battlefield conditions. Seven graduate nursing students, 60 USU medical students, and 11 additional medical students from Japan and the United Kingdom were responsible for triage, management and evacuation of casualties.

“We students found ourselves triaging and aggressively maintaining patient care as second nature. Biological and chemical agents played a much bigger part in our scenarios than we had experienced in previous training. The threat of these weapons was ever-present and a time consuming enemy tactic for all medical personnel that required proactive planning. At other times, both nurses and medical students racked their brains attempting to diagnose infrequently seen diseases, such as meningitis and malaria... Exotic diseases were present in our training scenarios as well. With the assistance of battlefield telemedicine and satellite communication with stateside facilities, such as the Walter Reed Army Medical Center in Washington, D.C., we were able to describe afflictions and send photos of patients for consultation, diagnosis, and treatment.”

- Nursing Spectrum, *Caring for Those in Harm's Way*, Volume 13, No. 6DC, March 24, 2003, pages 8-9.

In January of 2003, the GSN faculty arranged an interdisciplinary experience in the ***Military Contingency Medicine Course***. This course, unique to the USU School of Medicine (SOM) curriculum, has focused for years on medicine in a deployed environment and in response to a terrorist attack. The first two weeks of the course are currently devoted to reviewing and expanding basic concepts and manual skills; an Advanced Trauma Life Support (ATLS) Course is also taught. Additional topics in the first two weeks include the management of combat trauma, chemical-biological-radiological (CBR) exposure, environmental injuries, and combat stress. Special sections focus on triage, care of blast injuries, the health care of women in military settings, altitude and diving accidents, pain management, and legal/ethical issues on the battlefield. Prior to the field exercise portion of the course, the GSN and SOM students learn and/or review interventions in a simulated lab setting with mannequins that can “bleed” and “breathe.”

Next, the course includes an evaluated field exercise at a training site near San Antonio, Texas; this field experience has become internationally recognized as ***Operation Bushmaster***. The field exercise provides nuclear, biological and chemical training, ambulance loading and unloading procedures, and training on radio operations and land navigation. The exercise focuses on the support and leadership roles of the combat and civilian medics during battlefield and humanitarian missions. Students are evaluated on: health care provided to dozens of simulated casualties; leadership skills under demanding and stressful conditions; mission focus; and, overall teamwork.

During the 2003 Operation Bushmaster exercises, seven GSN students collaborated in a field environment with 169 USU SOM students and 26 medical students from Japan and the United Kingdom. Under simulated battlefield conditions, a war was fought in a mythical country of “Pandakar.” All students served in a variety of roles to include the senior medical officer, commander, radio operator, litter bearer, security officer, and ambulance platoon leader. For a majority of the participating nurses, this served as a continuation of training under austere conditions. During their previous years of military service, several of the GSN students had been deployed on real world missions and had already completed courses in Trauma Nurse Critical Care and Combat Casualty Care. However, Operation Bushmaster provided unique clinical and leadership training opportunities for simulating the role of an Advanced Practice Nurse in a multi-disciplinary setting. On the first day, participants received their first front-line ambulance containing four casualties and applied the concept of tailgate medicine, ***care first, tents later***. The field scenario focused on the treatment of moulaged casualties requiring life-saving interventions. Challenges included locating and organizing critically required supplies, as well as determining how and when to begin interventions such as the insertion of chest tubes and needle decompression.

Challenges in the field environment arose when, three miles from the front line, the students were informed that the CT Scanner would not fit on their truck and alternatives had to be considered. Once adjusted to the battle situation, where simulated patients were presenting devastating wounds, the students found themselves triaging and aggressively managing their patients. Amid this activity was the constant threat of biological and chemical agents. All students were confronted with disease non-battle injuries (DNBI) such as meningitis and malaria. Several of the scenarios provided moral, ethical, cultural, and geopolitical challenges, as in the medical treatment of a prisoner of war who, upon release from the patient area, was killed by “Pandakar” officials. On the final night of the field exercise, a mass casualty incident required students to triage, treat, stabilize, and evacuate 36 patients who were strewn across a 40 meter radius. Among the casualties were: a patient with a sucking chest wound; a pregnant woman ready to deliver; and, multiple burn patients.

Both GSN and SOM students gained a strengthened appreciation for the role of the senior medical officer on the battlefield. Their playing field was leveled as they came to understand the common goal of *providing good medicine in bad places*. As they boosted each other's morale during the exhausting exercise, the GSN and SOM students recognized the synergies and challenges shared by the entire team. Operation Bushmaster has added a new dimension to the training of advanced practice nurses; *Bushmaster embodies the spirit of the USU motto, Learning to Care for Those in Harm's Way.*

STUDENT AFFAIRS

Major Jack Davis, AN, USA, graduated from the USU Family Nurse Practitioner Program in 1999, but is currently assigned to Camp Anaconda near Balad, Iraq, in what is referred to as the “Sunni Triangle.” Davis is the Brigade Surgeon for the 17th Field Artillery Brigade from Fort Sill, Oklahoma, and is likely the first family nurse practitioner to ever serve in this capacity.

Prior to coming to USU, Davis was the Officer-in-Charge of the Army health clinic in Yuma, Arizona, with a stint in the surgical/trauma intensive care unit at Brooke Army Medical Center in San Antonio, Texas, before that. However, Davis began his military career in armored (tank) units and with special operations forces, making him more than qualified for his assignment with the 17th Field Artillery Brigade.

Davis’ duties as Brigade Surgeon include serving as a special staff officer to the Brigade Commander, keeping him informed of all medical aspects of brigade operations. He is also responsible for the supervision and training of all medical resources in the brigade that currently include four physicians’s assistants and 60 medics.

After the cessation of formal combat operations in Iraq, the 17th Field Artillery Brigade’s mission became largely one of restoration. The brigade is heavily involved in civil affairs projects - something Davis says his commander is passionate about. “He feels that each time we touch an Iraqi civilian’s life through our work, every American soldier becomes that much safer. I think he is right,” says Davis.

In addition to his other duties, Davis got involved in working with and advising his commander on issues related to the health and safety of the Iraqi civilian community. He works on initiatives designed to improve the safety of local drinking water, screens children for developmental delays and provides health care to Iraqi civilians through the Medical Civil Affairs Program (MEDCAP). “Since I have been here, the brigade has refurbished five schools, erected new electrical towers, rebuilt an irrigation pumping station and laid enough pipe to provide 83,000 people in 11 different villages with clean drinking water,” Davis said.

According to Davis, his role as Brigade Surgeon during Operation Iraqi Freedom has been simultaneously challenging and extremely gratifying.

“I am honored and thankful to have been given the opportunity to serve.”

- USU Medicine, *A Nurse in the Trenches*, Fall 2003, page 13.

The Selection Process. A commitment to the Nation must be evidenced in an applicant's decision to attend the GSN. The GSN Admissions Committee makes the final determination regarding admission to the GSN with the concurrence of the Dean. The membership of the Admissions Committee is different from those at other schools of nursing. In addition to members of the GSN faculty, the Committee has representatives from each of the Uniformed Services and faculty from the School of Medicine.

The applicant pool is unique. Applications to attend the GSN are submitted in accordance with the guidelines of the Services for Long Term Health Education and Training (Army), Duty Under Instruction (Navy), and Sponsored Graduate Education Programs (Air Force Institute of Technology). Officers from the Public Health Service are sponsored by their individual Agencies. The Admissions Committee of the GSN reviews the applicants' records on the basis of academic merit, which shows that the applicants can succeed in a graduate program. Academic aptitude is balanced against the evidence of future officership and continuing commitment to service in the Uniformed Services. The candidates nominated and selected by the Uniformed Services have had grade point averages of between 3.2 and 4.0 in their Baccalaureate Programs; and, most have had an average of between eight to twelve years of active duty experience in the Uniformed Services.

Annually, the GSN reviews approximately 75 applicants and admits between 25 to 37 students. GSN students in the MSN Program are full-time and retain their rank as officers. GSN students in the Doctoral Programs may be full-time or part-time; and, uniformed officers retain their ranks while attending the GSN. To sustain the GSN's high graduation rate, incoming students receive instruction on time management and test taking skills. Committed faculty promote student retention through both didactic and lab review sessions.

Class of 2005. The USU GSN welcomed the MSN Class of 2005, 38 active duty officers, during June of 2003. Eight officers were enrolled in the Family Nurse Practitioner (FNP) Class of 2005, bringing the enrollment of the two FNP classes (First and Second Year) to a total of 16 students. Twenty-two uniformed officers were enrolled in the Nurse Anesthesia Class of 2005, bringing the enrollment of the two Nurse Anesthesia classes (First and Second Year) to a total of 42 students. And, eight uniformed officers were enrolled in the inaugural Perioperative Clinical Nurse Specialist Class of 2005.

Of the 38 uniformed officers enrolled as First-Year GSN students: twelve are members of the Army; five are members of the Navy; twenty are members of the Air Force; and, one is a member of the Public Health Service. The MSN students range in grade from 0-2 to 0-4 with the majority at the 0-3 level. The student's service agreement following graduation is approximately two years of service for each year of education.

Development and Functions of the Student Advisory Council - A Strong Avenue of Communication.

Background. Beginning in October of 1998 and continuing throughout 2003, the GSN students, faculty, and staff, in coordination with the Federal Nursing Chiefs and the Office of Student Affairs, School of Medicine, worked to develop and implement a Student Advisory Council. The Student Advisory Council was initially established during 1998 to: 1) advise the Dean, GSN, on matters of student interest and concern; 2) provide an active and visible means for the student body to communicate directly with the Dean; and, 3) serve as a process improvement mechanism and a forum for addressing student issues.

The Student Advisory Council (SAC) is an independent entity that exists to represent the GSN student body; it is not an element of the military rating chain, nor an extension of the administration. It serves as a line of communication between the student body and the administration of the GSN. The Council is designed to discuss student issues that arise across class boundaries and to provide a student body consensus, which may then be communicated to the Dean, GSN, and other responsible school officials.

Composition. The GSN Student Advisory Council consists of the student president, secretary, one representative from each MSN option area and class and one representative from the Post-Master (PM) Nurse Practitioner Class. All members of the SAC are voting members. The president of the SAC is ordinarily the second-year class president.

The SAC Faculty Advisor assists and advises each class on the functions and responsibilities of the SAC, and works with the GSN Commandant to ensure that class elections of officers and academic representatives are completed on schedule each academic year.

Functions of the Council. The Student Advisory Council meets six times during the academic year, or more frequently as required. Decisions on any issue discussed at a meeting require a majority vote of the attending members. The student president prepares meeting agendas from input provided by other SAC members, conducts the meetings, and coordinates discussions and votes to establish a consensus of the student body. The student president also met regularly during 2003 with the GSN Dean to discuss matters of interest to the student body. The SAC representatives act as advocates for the students in academic matters. They also act as a liaison between students and academic program areas and serve as the communication link for the students on such matters as changes in the academic schedule, rooms, etc. SAC representatives are responsible for writing an After Action Report at the conclusion of each academic semester, which is also discussed with the Dean. This report is a summary of student comments and feedback about each course, including faculty, books, and materials within the MSN Program options. Based upon its activities during 2003, the Student Advisory Council is serving as an excellent forum to ensure faculty/student involvement, communication, and on-going curriculum improvements.

GSN Class of 2003 Outstanding Student Awards. Annually, the GSN Students are recognized for excellence in academics and clinical practice. During 2003, the following awards were presented:

Family Nurse Practitioner - Outstanding Graduate Award. **Captain Anthony Leonard, AN, USA,** distinguished himself as a student in the graduating Family Nurse Practitioner Class. This award recognizes that Captain Leonard employed a sound scientific foundation, an inquiring mind, and a collaborative approach for the comprehensive care of his patients; and, he demonstrated personal initiative, perseverance, and outstanding characteristics throughout his academic endeavors at USU.

Family Nurse Practitioner - Academic Performance Award. **Captain Tammie Boeger, AN, USA,** received the Distinguished Academic Performance Award, which recognizes the student having the most outstanding academic proficiency in the graduating Family Nurse Practitioner Class.

Family Nurse Practitioner - Distinguished Clinical Performance Award. **Captain Meryia Windisch, AN, USA,** received the Distinguished Clinical Performance Award, which recognizes the student having the most outstanding clinical proficiency in the graduating Family Nurse Practitioner Class.

Family Nurse Practitioner - Esprit de Corps Award. **Captain Jana Ortiz, AN, USA,** was selected to receive the Esprit de Corps Award. The Esprit de Corps Award recognizes the graduating student from the graduating Family Nurse Practitioner Class who by thought, word, action, and deed, demonstrates sensitive humanistic qualities for the well being of all. By example, the recipient has inspired all classmates to enjoy their camaraderie, their profession, and their commitment to a life of service to mankind.

Family Nurse Practitioner - First Year Outstanding Student Award. **Captain Jamie Cornali, AN, USA,** was selected to receive the First Year Outstanding Student Award.

Nurse Anesthesia - Outstanding Student Award. **Lieutenant Victor Auld, NC, USN,** distinguished himself as a student in the graduating Nurse Anesthesia Class. This award recognizes Lieutenant Auld for achieving high levels of academic performance while simultaneously demonstrating outstanding leadership qualities at USU.

Nurse Anesthesia - Esprit de Corps Award. **Captain Jeffrey Daxe, USAF, NC,** was selected to receive the Esprit de Corps Award for the graduating Nurse Anesthesia Class. The Esprit de Corps Award recognizes the graduating nurse anesthesia student who by thought, word, action, and deed, demonstrates sensitive humanistic qualities for the well being of all. By example, the recipient has inspired all of his classmates to enjoy their camaraderie, their profession, and their commitment to a life of service to mankind.

Nurse Anesthesia - First Year Outstanding Student Award. **Lieutenant John Volk, NC, USN**, was recognized as the First Year Outstanding Student for Nurse Anesthesia.

Nurse Anesthesia Presents the Agatha Hodgins Award. **Lieutenant Victor Diaz, NC, USN**, was selected from the graduating Nurse Anesthesia Class to receive the Agatha Hodgins Award. Lieutenant Diaz received the award upon completing the 18-month clinical phase in December of 2003. The award, established in 1975, recognizes a graduating nurse anesthesia student for outstanding accomplishments in both the classroom and clinical arenas of nurse anesthesia education. The recipient's dedication to excellence has furthered the art and science of nurse anesthesia. *Background.* The award was established in honor of Agatha Cobourg Hodgins (1877-1945), founder and first president of the National Association of Nurse Anesthetists. This organization was later renamed the American Association of Nurse Anesthetists. Miss Hodgins and Dr. George Crile pioneered the first known nurse anesthesia school and hospital service at Lakeside Hospital in Cleveland, Ohio. During World War I, Miss Hodgins trained nurse anesthetists for military service. She also assisted with the development of the early anesthesia machines and later with the perfection of anesthesia techniques still in use today.

Dean's Awards for Research Excellence. **Major Joseph Candelario, AN, USA**, received the Dean's Award for Research Excellence, Family Nurse Practitioner. **Lieutenant Victor Auld, NC, USN**, and **Lieutenant Victor Diaz, NC, USN**, each received the Dean's Award for Research Excellence, Nurse Anesthesia. These awards recognized the graduating students demonstrating the most outstanding proficiency in nursing research.

Who's Who Among Students in American Universities and Colleges. **Lieutenant Victor Auld, NC, USN**, and **Captain Ann Nayback, AN, USA**, were both recognized by Who's Who Among Students in American Universities and Colleges upon their graduation from the GSN.

GSN Students Participate at the American Association of Nurse Anesthetists (AANA) 69th and 70th Annual Meetings.

AANA Anesthesia College Bowl Runner Up. **Captain Annie Hall, USAF, NC**, was recognized as a member of the Runner-Up Team in the AANA Anesthesia College Bowl held at the 69th Annual Meeting of the American Association of Nurse Anesthetists. She received a plaque presented by Colonel Steve Janny, Nurse Anesthesia Consultant to the Surgeon General of the Army, and Colonel Richardson, Office of Brigadier General William Bester, Director of the United States Army Nurse Corps.

Poster Presentations. Nurse Anesthesia students from the GSN also submitted poster presentations at the 70th Annual Meeting of the AANA held in Boston, Massachusetts. All ten students of the Class of 2003 participated in the research efforts that resulted in the poster presentations. Research topics are indicated below (presenter's name is underlined):

Effect of Air Versus Saline in the Loss of Resistance Technique in Identifying the Epidural Space When Placing a Continuous Epidural Catheter Among the Parturient Patient: **Lieutenant Victor Auld, SRNA, BSN, NC, USN**; **Lieutenant Victor Diaz, SRNA, BSN, NC, USN**; **Lieutenant Jason McGuire, SRNA, BSN, NC, USN**; **Lieutenant Teresa Kronenberger, SRNA, BSN, NC, USN**; **Lieutenant Commander Joseph Burkard, CRNA, MSN, NC, USN**; **Lieutenant Commander John Maye, CRNA, Ph.D., NC, USN**; and, **Commander Joseph Pellegrini, CRNA, D.N.Sc., NC, USN**.

Instructing Anesthesia Providers on the Assembly, Functional Check and Disassembly of the Drager Narkomed-M Field Anesthesia Machine: **Captain Jeffery M. Daxe, SRNA, USAF, NC**; **Captain Laura L. Koontz, SRNA, USAF, NC**; and, **Captain Scott C. Rhodes, SRNA, USAF, NC**.

Comparison of Oxygen Reservoir Tube Length on Imposed Inspiratory Work of Breathing in the Universal Portable Anesthesia Complete: **Captain Alan E. Meekins, AN, USA**; and, **First Lieutenant Eric A. Lange, AN, USA**.

Regional Anesthetic Admixture Calculation Module: **Captain Martin Ockert, SRNA, USAF, NC**; **Captain Jamie Chen, SRNA, USAF, NC**; and, **Captain Marc Dildy, SRNA, USAF, NC**.

GSN ALUMNI

Lieutenant Colonel Virginia Garner, GSN Family Nurse Practitioner Program, Class of 1997, was named as the Air Force Advanced Practice Nurse of the Year for 2002, while assigned to Tinker Air Force Base, Oklahoma. Garner is now assigned to the 45th Medical Group, Patrick Air Force Base, Florida.

- USU Medicine, Class Notes, Fall 2003, page 29.

Graduate Profile. The GSN has 200 uniformed graduates who have received the Master of Science in Nursing (MSN) Degree *in residence*: Army - 53 (which includes seven Post-Master Graduates); Navy - 16; Air Force - 116; and, Public Health Service - 15. Ninety-six uniformed officers have graduated as Family Nurse Practitioners; 104 uniformed officers have graduated in Nurse Anesthesia; and seven from the Post-Master Family Nurse Practitioner Certificate option. As of April 2004, well over 80 percent of the GSN graduates remain on active duty in their individual Services. The GSN alumni do not have a formal residency requirement so they go directly into clinical practice, consistent with the credentialing guidelines at the individual health care facilities. The GSN alumni can expect to serve at least one tour as practitioners or anesthetists before being considered for assignments in any other role. The GSN alumni have three career tracks: clinical, administrative, and research. There are a number of “nontraditional” and operational assignments available as well; only a limited number of alumni would be expected to pursue those assignments. New avenues for command and staff positions are continuously opening for advanced practice nurses. It is expected that the GSN alumni will continue to be recognized and rewarded for their outstanding performance with career assignments of ever-increasing responsibility.

GSN Alumni Receive Outstanding Results on National Certification Examinations. The immediate measurable standard of success for GSN alumni is the passing of the National Certification Examinations. Over 97 percent of the GSN graduates have passed the National Certification Examinations at the upper percentile, on their initial examination. *For example, credentialing scoring information released on February 26, 2002, by the American Nurse Credentialing Center’s Commission on Certification shows that of the 15 GSN Family Nurse Practitioner graduates who took the certification examination, all 15 passed with a mean score of 123.3, the highest ever achieved. And during 2003, all 10 GSN Nurse Anesthesia graduates passed the Council on Certification of Nurse Anesthetists Certification Examination on the first attempt; seven of the ten passed with perfect scores of 600.*

GSN Alumni and Supervisor Surveys Reflect Strengths of the GSN Program. Another short-term measure is the graduate’s successful performance as an advanced practice nurse, as determined by the graduate’s immediate supervisor. One year after graduation, both GSN alumni and their supervisors are concurrently surveyed. Immediate supervisors, familiar with the day-to-day performance of the graduates, are queried regarding specific areas of GSN alumni strengths and weaknesses in clinical specialty performance. This information is collated and compared to the graduates’ self-performance ratings. In addition, the GSN asks its graduates to complete an end-of-program evaluation, followed by one-year and three-year (Family Nurse Practitioner only) post-graduation evaluations. Information from the surveys is tracked and trended to identify any needed revisions or additions to course or clinical content or experiences.

The GSN Uses a Systematic Approach for the Evaluation of Students, Alumni, and Supervisors.

The GSN Master Plan for Program Evaluation provides a systematic approach for the evaluation of the GSN's structure, processes, and outcomes. The plan identifies the focus of the evaluation, the individuals responsible for conducting the evaluation, the reporting chain, and the method and frequency of the evaluation. The overall responsibility for implementing the evaluation plan resides with the GSN Evaluation Committee. All GSN faculty participate in the acquisition, interpretation, and application of the resulting data. The committee has a central focus geared to the outcomes of the GSN, both short and long range. The program administrator is responsible for administering the didactic evaluation program to include maintaining the databases, posting the course evaluations, downloading and evaluating the data, and disseminating the data to department chairs for final action. Faculty within the GSN make curricular modifications and course changes incorporating student comments and suggestions. Major changes are referred to the GSN Curriculum Committee for oversight and approval. After changes are implemented, courses are conducted and evaluated again. The evaluation process is on-going as courses continually improve and students graduate with ever-enhanced preparation.

GSN Has Designed and Implemented Evolving Tools for the Effective Measurement of Alumni Performance. Members of Nursing Research, the Evaluation Committee, and faculty representatives from Family Nurse Practitioner and Nurse Anesthesia have designed and implemented tools to effectively measure alumni performance and to provide reports on such to the Dean, GSN, and to the Federal Nursing Chiefs. These assessment activities resulted in the publication of the GSN Evaluation Manual, in November of 2000; use of the additional tools found in the manual enable the timely completion of course, end-of-first-year, and end-of-second-year evaluations. The GSN Evaluation Committee Policy and Precedent Statement #95-07 was also amended on November 21, 2000, to ensure that outcomes of the GSN, both short and long range, are included in the content of all evaluation tools. As national program standards and the GSN program objectives have evolved, the GSN's outcome data collection tools and methods have also changed in order to collect data consistent with current standards and objectives. New surveys were deployed by the GSN in 2001 to increase congruency between the FNP and NA accreditation standards and the GSN terminal objectives and survey items. More extensive tracking is now possible among respondents to the surveys for graduates, alumni, and employers. In addition to rating performance levels for terminal objectives, graduating students, employers, and alumni are also asked to rate their level of satisfaction with other aspects of the MSN Program. Accomplishments and employment following graduation are also tracked through the one-year and three-year alumni surveys mentioned above. Selected items on the alumni survey request the following information: uniformed service status; professional activities; continuing education; current job position and specialty; employer type; and, employment responsibilities. End-of-program, alumni, and employer evaluation data, along with course evaluation data, are tabulated by Nursing Research and forwarded to the Evaluation Committee for tracking and trending as well as to the Dean and Chairs. Reviews of these reports by the GSN and the Federal Nursing Chiefs ensure that the GSN curriculum is meeting the requirements of the Uniformed Services.

USU GSN Graduates Hold Leadership Roles and Earn Special Recognition throughout the Uniformed Services - Selected Examples from the USU GSN Alumni.

“Deployed heroes don’t have family members kiss them before they roll into the operating room or sit by their beds and listen. But we are there to talk to them; make sure they know someone cares. In the truest sense of the word, we are their family.”

- **Major Susan Perry, CRNA, USAF, NC, GSN Class of 1998, Nurse Anesthesia, *Eifel Times*, *Nurse Finds Peace While Tending Heroes*, Spangdahlem Air Base, Germany, January 23, 2004.**

GSN Class of 1996.

Lieutenant Colonel Kelley Moore, CRNA, USAF, NC, GSN Class of 1996, Nurse Anesthesia, deployed in the Spring of 2003 to Southwest Asia in support of Operation Iraqi Freedom.

GSN Class of 1997.

Major Adrienne Burnette Hartgerink, CRNA, USAF, NC, GSN Class of 1997, Nurse Anesthesia, was the author of an article featured in the Richmond Times-Dispatch in January of 2004; the article highlighted the role of the military Certified Registered Nurse Anesthetist. Major Hartgerink was deployed in support of Operation Enduring Freedom during 2002; in her article, she explained what it meant to her to serve her country in the unique and positive role of a military Certified Registered Nurse Anesthetist. Major Hartgerink served as the anesthesia component of a Small Portable Expeditionary Aeromedical Rapid Response (SPEAR) Team that was deployed to the Republic of the Philippines in support of Operation Enduring Freedom. Her experiences provide insight into the austere and often dangerous environments in which medical professionals must work during the continuing war on terrorism.

Major David Stamps, CRNA, USAF, NC, GSN Class of 1997, Nurse Anesthesia, was recognized for his expertise in casualty anesthesia care by being named to the faculty of the Expeditionary Medical Support (EMEDS) Course, USAF School of Aerospace Medicine, Brooks City-Base, Texas. The EMEDS Course is the state-of-the-art Air Force Casualty Care Course that is attended by all deployed Air Force Medical Service personnel.

GSN Class of 1998.

Lieutenant Commander Bradley Hartgerink, CRNA, NC, USN, GSN Class of 1998, Nurse Anesthesia, was deployed on the Hospital Ship *Comfort* during 2003 in support of Operation Iraqi Freedom. While on the *Comfort*, Lieutenant Commander Hartgerink performed many anesthetics on both Iraqi prisoners and Coalition forces.

Major Susan Perry, CRNA, USAF, NC, GSN Class of 1998, Nurse Anesthesia, was deployed in the Winter of 2003 to Southwest Asia in support of Operation Iraqi Freedom; she successfully administered many anesthetics to critically wounded casualties under austere field conditions.

GSN Class of 1999.

Captain Wendy Aronson, CRNA, USAF, NC, GSN Class of 1999, Nurse Anesthesia, was deployed in 2002 to Southwest Asia from Elemendorf Air Force Base. Setting up operations at an austere location, Captain Aronson pioneered the modification of EMEDS supplies resulting in significant savings of compressed oxygen, a rare commodity in an austere environment. Her efforts led to Air Force-wide recognition; and, as a result, she has been appointed to the prestigious TriService Joint Readiness Clinical Advisory Board (JRCAB) at Fort Detrick, Maryland.

Major Alison (Solberg) Beach, CRNA, USAF, NC, GSN Class of 1999, Nurse Anesthesia, was deployed as the sole anesthesia provider at a classified location from February to April of 2003. Her deployment was in support of Operation Iraqi Freedom.

Major Jack M. Davis, AN, USA, GSN Class of 1999, Family Nurse Practitioner, is currently serving as the Brigade Surgeon for the 17th Field Artillery Brigade in Balad, Iraq; he has been deployed since April 3, 2003.

Major Adrienne Hartgerink, CRNA, USAF, NC, GSN Class of 1999, Nurse Anesthesia, was deployed during 2002 to the Philippine Islands in support of the War on Terrorism; Major Hartgerink cared for members of a TriService Task Force. While deployed, her anesthesia skills were tested during a mass casualty with her life-saving treatment significantly contributing to the successful care of the casualties. She is currently a staff CRNA at Langley Air Force Base, Virginia.

Major Brian Todd, CRNA, USAF, NC, GSN Class of 1999, Nurse Anesthesia, was deployed during 2002 to Southwest Asia, to include service in Oman. An expert in field equipment, he was one of the first USAF CRNAs to use specialized anesthesia equipment in an austere environment. Due to his expertise, he has been named to the prestigious TriService Joint Readiness Clinical Advisory Board (JRCAB) at Fort Detrick, Maryland. The JRCAB establishes equipment policy for the Services. Major Todd also serves as a staff CRNA at the United States Air Force Academy, Colorado.

GSN Class of 2000.

Major Julie Bosch, USAF, NC, GSN Class of 2000, Nurse Anesthesia, was deployed on a humanitarian mission for two weeks to Guatemala in June of 2002, where her clinical caseload was over 8,000 people. Major Bosch was recently relocated to Charleston Air Force Base, South Carolina, during June of 2003.

Captain Brian Estavillo, CRNA, USAF, NC, GSN Class of 2000, Nurse Anesthesia, was deployed to Southwest Asia during 2002 with the Air Force Special Operations Command; he is currently a staff CRNA at Travis Air Force Base, California.

GSN Class of 2001.

Captain Jen-Jen Chen, USAF, NC, GSN Class of 2001, Family Nurse Practitioner, was deployed to Tallil Air Base, Iraq, on November 13, 2003; he will remain there until mid-March, 2004.

Captain Virginia Johnson, CRNA, USAF, NC, GSN Class of 2001, Nurse Anesthesia, was deployed to Cyprus in the Spring of 2003, in support of Operation Iraqi Freedom. She successfully administered over seventy anesthetics.

Captain Geoffrey Kuzmich, CRNA, USAF, NC, GSN Class of 2001, Nurse Anesthesia, was deployed for six months to Yemen, Djibouti, and Qatar in support of Operation Iraqi Freedom. Captain Kuzmich successfully performed many anesthetics, including cases on critically wounded pediatric casualties under austere conditions. He has been selected as the Director, Anesthesia Services, for the Air Force Center for Sustainment of Trauma and Readiness Skills (C-STARS) at the University of Maryland R. Adams Crowley Shock Trauma Center in Baltimore, Maryland. Selected for his superb teaching skills and trauma anesthesia expertise, Captain Kuzmich will replace **Captain John Killpack, CRNA, USAF, NC, GSN Class of 1999**. Captain Killpack was the founding Anesthesia Services Director at C-STARS.

Captain Mikel Phillips, CRNA, USAF, NC, GSN Class of 2001, Nurse Anesthesia, was deployed from Wright-Patterson Air Force Base, Ohio, to Southwest Asia during January of 2003. Captain Phillips was lauded by his command for performing in a superior fashion under austere field conditions.

Captain Cherri Shireman, USAF, NC, Class of 2001, Family Nurse Practitioner, was recently selected by the Air Force Institute of Technology to return to school for a Ph.D. in Nursing. Captain Shireman will begin the Doctoral Program at the USU GSN in the Fall of 2004.

Class of 2002.

Captain Patricia F. Coburn, USAF, NC, GSN Class of 2002, Family Nurse Practitioner, returned from one year in Iraq; she departed just prior to the start of the war and was deployed for Operation Iraqi Freedom and Operation Enduring Freedom. Captain Coburn was part of a group that published an article in the *ANC Newsletter* several months ago where she stated the following: “Couldn’t have chosen a better profession... Sincerely love my job and there is not a day that goes by where I’m not given an opportunity to help educate soldiers on health care issues.”

Captain Angelo Moore, AN, USA, GSN Class of 2002, Family Nurse Practitioner, is currently stationed at the Landstuhl Regional Medical Center working as a Family Nurse Practitioner in the Family Practice Clinic. Her other duties include Call for the Family Practice Clinic, Emergency Department, and Triage Officer for the Deployed Warrior Medical Management Center. She triages soldiers evacuated to the Landstuhl Regional Medical Center from Iraq, Kuwait, Afghanistan, and Africa; she also backfills at other Army Health Clinics throughout Europe for providers who have been deployed. For example, she was in Italy in March of 2004 to conduct Post-Deployment processing and health screenings for units returning from Iraq. Captain Moore presented her thesis results with **Lieutenant Commander Gerald Boyle** at the 2002 Meeting of the Association of Military Surgeons of the United States. In addition, she conducted a podium presentation at the 2003 American Academy of Nurse Practitioners Conference in California. Captain Moore also published an article entitled *Health Practices of Male Department of Defense Health Care Beneficiaries: A Follow-Up on Prostate Cancer Screening in the National Capital Area* in the December 2003 issue of Military Medicine.

Captain Michael Neal, CRNA, AN, USA, GSN Class of 2002, Nurse Anesthesia, was deployed, just months after his graduation, to Southwest Asia during the Winter of 2003, in support of Operation Iraqi Freedom. Captain Neal was deployed to a busy Army Combat Support Hospital and successfully administered countless anesthetics to Coalition Forces, prisoners of war, and civilian casualties.

First USU GSN Student Participates in an OCONUS Humanitarian Mission.

Captain Eric Lange, Nurse Anesthesia Program Class of 2003, was part of a multidisciplinary humanitarian team deployed to Honduras in February of 2003. Under the direction of **Lieutenant Colonel Jackie Stark, Walter Reed Army Medical Center (WRAMC) Nurse Anesthesia Clinical Site Director**, Captain Lange participated in a United States Southern Command, Humanitarian and Civic Assistance, Medical Readiness and Training Exercise. They were part of a WRAMC team that went to the Leonardo Martinez V. Hospital, an austere Ministry of Health hospital, located in San Pedro Sula, Honduras (a large industrial city located in the northwest corner of Honduras). The daily operations were similar to field conditions within a fixed facility. The team consisted of four surgeons, three anesthesia providers, two nurses, three surgical technicians, and one audiologist. The mission focus was exclusively the surgical treatment of chronic ear disease and fitting patients who received operations during previous missions with hearing aids to correct acquired maximal conductive hearing loss. Under Lieutenant Colonel Stark’s supervision, Captain Lange performed over twenty general anesthetics using the same anesthesia equipment that is currently being used in Iraq. Captain Lange commented: “What better

experience to prepare a student for deployment... It was an awesome experience, both from a caring and from an educational perspective.”

Another Nurse Anesthesia Program student will participate in a humanitarian mission in Central America during the Spring of 2004.

FACULTY

Composition. During 2003, the Graduate School of Nursing, as reported in the November 15, 2003 Faculty Survey, had 20 full-time faculty: eleven civilians and nine uniformed officers. In addition, there were 71 off-campus/adjunct faculty: 34 civilians and 37 uniformed officers who assisted in the programs of the GSN. *(As reported in March of 2004, there are currently 22 full-time faculty: thirteen civilians and nine uniformed officers; and, there are 111 off-campus faculty: 61 civilians and 50 uniformed officers.)*

Leadership of the GSN.

Faye Glenn Abdellah, Ed.D., Sc.D., RN, FAAN, Professor and Founding Dean Emerita. The Founding Dean of the Graduate School of Nursing, **Doctor Faye Glenn Abdellah**, has long been recognized as a national pioneer in nursing, nursing research, long-term care policy, mental retardation, the developmentally disabled, home health services, aging, hospice and AIDS. She has been the recipient of 12 honorary degrees, over 90 major awards, authored or co-authored more than 152 publications, and authored six books, some translated into six languages, which have altered nursing theory and practice. Prior to assuming the post of Founding Dean, Rear Admiral Abdellah (0-8), United States Public Health Service, served as the Chief Nurse Officer and Deputy Surgeon General of the United States from 1981 until her retirement in 1989 (for more detail on Dean Abdellah's accomplishments, see Section I of the USU Journal, *USU Honorary Degrees* and the *University Medal*). On May 31, 2002, Dean Abdellah celebrated her retirement from USU with distinguished participants including the University President, the Federal Nursing Chiefs, the Commanding Officer of the National Naval Medical Center, a former Surgeon General of the United States, senior Congressional staff, civilian nursing leaders, and over three hundred members of the USU community. Significantly, she also led the GSN in preparing for and ultimately receiving full accreditation for the maximum allowable terms from the National League for Nursing Accrediting Commission (NLNAC) and the Commission on Collegiate Nursing Education (CCNE). Before her retirement, she ensured that the preparation for reaccreditation by the Council on Accreditation (COA) of Nurse Anesthesia Educational Programs was well on track.

Patricia A. Hinton Walker, Ph.D., RN, FAAN, Professor and Dean. Following an extensive national search, **Doctor Patricia Hinton Walker** was selected, in June of 2002, to serve as the second Dean of the GSN. Dean Hinton Walker is nationally recognized as a leader in education and has been a strong advocate for health services research, specifically measuring cost and quality outcomes. After serving as the Dean of the Nursing School at the University of Colorado Health Sciences Center, Doctor Hinton Walker was selected as the American Academy of Nurses Senior Scholar in Research at the Agency for Healthcare Research and Quality (AHRQ) where she coordinated the extensive review of funded health sciences research used in determining health policy. During her distinguished career, Dean Hinton Walker served as an Associate Dean at two major research universities; a visiting professor in community based-care; a director of an entrepreneurial community-based practice organization; and, as a consultant on quality and cost-effective outcomes, faculty practice and community-based care, managed

care, practice-based research, and organizational development in hospitals and schools of nursing. In addition to her more than 30-year teaching career, she has authored five books on nursing education and practice as well as 49 peer-reviewed professional articles. She has been recognized by the most prestigious organizations in the nursing profession. Her honors and awards include: the Distinguished Alumni of the Year by the University of Kansas Medical Center Nurses Alumni Association (1998); Who's Who in American Nursing (1993); Nurse of the Year for the Mississippi Nurses Association District #13 (1980); Member of the Board of Directors, Friends of National Institute for Nursing Research, from 1998 to the present; and, recipient of international invitations for educational consultation from the United Kingdom, Hong Kong, Thailand, Japan, Belgium, Poland, Spain, Sweden, and many others. Dean Hinton Walker's expertise in interdisciplinary practice, education, research, and health policy will ensure the continued progress of the GSN. And, she has continued her involvement in the nursing agenda at the AHRQ as a senior advisor with a focus on quality outcomes. Opportunities for research in the MHS, USPHS, and other Federal Health Systems continue to be utilized by the present GSN Dean for studying the areas of prevention, health promotion, and patient safety. Dean Hinton Walker understands the potential impact on policy that nursing research can have and has continued to foster this through the development of a doctoral program at the GSN. A dedicated believer in utilizing internal motivation, Dean Hinton Walker sees educators as people who guide learners toward missions or areas of interest rather than prescribing courses of action. She also advocates for exploring alternative means of learning, such as through the Internet. Following her arrival at the GSN in mid-2002, Dean Hinton Walker has carefully led the GSN faculty and staff through a transition period utilizing new initiatives and concepts to analyze systems, review curriculum, and enhance program development. Dean Hinton Walker's goal is a shared vision of the GSN that is flexible, responsive and on target with the needs of the Uniformed Services. Her vision is to continue to optimize the strengths and interests of the GSN faculty and staff, to enhance the research infrastructure, to continue the merging of technological advancements into the curriculum, and to support the provision of a flexible curriculum that addresses the educational requirements of the Uniformed Services, while ensuring that the infrastructure sufficiently supports both faculty and students.

The GSN Faculty Develops a Signature Curriculum. To support the GSN mission and address changing societal and health care needs, the GSN is implementing a signature curriculum developed at the USU GSN Quarterly Retreat in August of 2002. The new curriculum is designed to support practice, research, and educational experiences relevant to medical readiness, the MHS, the USPHS, and other Federal Health Systems. The GSN curriculum is positioned to prepare nurse scientists and leaders at the graduate level, with an emphasis on the Nation's Uniformed Health Systems. The signature curriculum has three focused research and practice areas: *Operational Readiness in Changing Environments*; *Population Health and Outcomes*; and, *Clinical Decision-Making in the MHS, USPHS, and other Federal Health Systems*, with cross-cutting emphasis on patient safety, ethics, force protection, and international health.

Operational Readiness in Changing Environments. Graduates from the University often deploy to, and provide care in support of, geopolitical events including war, national and man-made disasters, peacekeeping missions, and humanitarian assistance. The ability to function effectively is dependent on the flexibility to adapt to changes in climate, culture, and mission. The operational readiness pillar of the GSN provides the necessary framework to prepare students to manage clinical, administrative and leadership demands specific to the mission during deployment.

Population Health and Outcomes. Population health refers to an approach to improve the health of a population and to reduce health inequities among population groups. The objective of population health is to examine and take action on a broad range of factors and conditions that influence health. The population health approach recognizes that health is a capacity or resource rather than a state, a definition, which corresponds more to the idea of being able to pursue one's goals, to acquire skills and education, and to grow. The broader notion of health recognizes the range of social, economic and physical environmental factors that contribute to health; the clear articulation of this concept of health is *the capacity of people to adapt to, respond to, or control life's challenges and changes*. Outcome evaluation is essential in a population health approach. It examines long-term changes in both health and the determinants of health. These include changes in knowledge, awareness and behavior, shifts in social, economic and environmental conditions, as well as changes in public policy and health infrastructure. Outcome evaluation seeks to measure reduction in health status inequities between population subgroups. Longer-term outcome evaluation is essential for a comprehensive evaluation program, which also includes process evaluation (to determine whether a policy or program is meeting its goal and reaching its target population) and impact evaluation (to determine the affects of a program on the health of a population).

Clinical Decision-Making in the MHS, USPHS, and other Federal Health Systems. In the MHS, USPHS, and other Federal Health Systems, clinical decision-making includes the coordination of patient care services across the Nation to optimize the delivery of health care to recipients. Ensuring seamless care across the health care continuum requires a unique understanding of health issues and the complexity of integrating the services of the largest health care systems within the United States (the MHS and VA Medical Systems). The GSN curricula provide uniformed students with a framework to effectively function both clinically and administratively in the MHS, USPHS, and other Federal Health Systems.

Three Categories of Courses. Regardless of program specialty, all GSN students will graduate with an advanced understanding of Operational Readiness, Population Health and Outcomes, and Clinical Decision-Making in the MHS, USPHS, and other Federal Health Systems. Cross-cutting emphasis will be placed on concepts related to *leadership; national and international political, cultural and environmental health care factors; safety; and, research*. At each nexus point (i.e., leadership and operational readiness; leadership and clinical decision-making; and, leadership and population health and outcomes) the content will be tailored to the level of the student. For example, when leadership and operational readiness concepts are first introduced, they will be offered at Level 1, forming a foundational knowledge base. Level 2 concepts will then be introduced, forming a more complex understanding of leadership and operational readiness; and, finally, highly advanced (Level 3) concepts will be introduced. Uniformed students will emerge from the GSN programs and return to the Uniformed Services workforce with a unique and highly complex understanding of: Operational Readiness; Population Health and Outcomes; and, Clinical Decision-Making in the MHS, USPHS, and other Federal Health Systems.

The process of integrating the GSN signature curriculum was made more complex with the concurrent addition of the MSN Degree in the Clinical Nurse Specialist track. Because the role of the clinical nurse specialist is different from the roles of the family nurse practitioner and the nurse anesthetist, the GSN had to reconsider the focus and content of many of its existing core courses. Clinical nurse specialists differ in that their role is broader, spanning from the individual patient to the hospital system. Thus, the new GSN curriculum will focus on systems and population health *in addition to* the traditional care of the individual patient.

In order to address this new focus, the GSN curriculum task force first reviewed the AACN *Essentials of Master's Nursing Education* criterion. The following definitions were taken directly from the AACN *Essentials* document and have been adopted by the GSN as framing definitions for the three categories of courses taught within the GSN:

Graduate Nursing Core: Foundational curriculum content deemed essential for all students who pursue a Master of Science in Nursing Degree, regardless of specialty or functional focus, will be considered the Graduate Nursing Core. The Graduate Nursing Core Courses will include the following: Role, Role/Ethics/Public Policy, Research, and Healthcare in a Global Environment;

Advanced Practice Nursing Core: Essential content for providing direct patient/client services at an advanced level will be considered the Advanced Practice Nursing Core. The Advanced Practice Nursing Core Courses will include Health Assessment, Anatomy/Physiology, Pathophysiology, and Pharmacology; and,

Specialty Curriculum Content: Those clinical and didactic learning experiences identified and defined as essential by the specialty nursing organizations will be considered the Specialty Curriculum Content.

Using these criteria as a framework, all of the GSN courses currently being taught were critically examined. The GSN faculty determined that all master-prepared students should complete the courses identified within the Graduate Nursing Core. And, because the GSN graduates must be able to provide direct patient care in the MHS and USPHS, all GSN students are also required to take the courses identified within the Advanced Practice Nursing Core.

During the past 12 months, all GSN (core and specialty) courses have been carefully reviewed, and revised as appropriate, in order to integrate the new GSN curriculum. The GSN faculty, in coordination with the Federal Nursing Chiefs, have gradually transitioned into providing the new core curriculum rather than implementing all of the required changes at once. It is anticipated that the new GSN curriculum will be completely in place during the Summer of 2004.

The GSN Re-Evaluates Its Structure.

The August 2002 GSN Faculty Retreat. The GSN faculty began discussing the development of a new organizational structure at the August 2002 Faculty Retreat; program functions and faculty support responsibilities of the existing organizational structure were analyzed. Concerns were identified that the existing structure limited the flexibility of the GSN to respond in a timely manner to the special requirements of the Federal Nursing Chiefs. The attendees also reviewed the balance of the requirements for faculty development and research while simultaneously meeting evolving curriculum or student needs. It was determined that existing functions and requirements had to be identified, quantified, and structured in a manner that would offer the most flexibility to meeting the special needs of the Services and graduate students, while recognizing the importance of on-going faculty development and research. A Faculty Structure Task Force (FSTF) was established that represented a cross-cutting of the entire faculty to address these issues. The following guidelines were provided to the FSTF by the GSN faculty:

The Faculty Structure Should -

- 1) Be flexible (responsive) to accommodate growth and change;
- 2) Delineate department needs from program needs;
- 3) Support faculty growth and promotion;
- 4) Show lines of accountability and responsibility;
- 5) Offer opportunities/mechanisms for alumni participation;
- 6) Reveal the GSN's community of scholarship;
- 7) Support communication at all levels; and,
- 8) Support both the research and program missions of the GSN.

A Proposed New Structure. Within three months, the FSTF had prepared and presented the first draft of a proposed new structure during the GSN All Faculty Retreat held in December of 2002. The following guidelines for establishing the new structure were proposed:

The Organizational/Functional Structure Would -

- 1) Establish two departments. The FSTF proposed that two departments would best meet the needs of the GSN given its current size. Should the GSN faculty significantly expand in the future, the two-department structure could be reconsidered for the possible addition of a third department;
- 2) Delegate the following responsibilities to the Department Chairs:
 - Support promotion and career progression goals by ensuring that faculty efforts are focused on meeting or exceeding the Committee on Appointments, Promotion and Tenure (CAPT) criterion;
 - Ensure equity of the workload across the faculty;

- Facilitate faculty research;
 - Support new faculty by ensuring the establishment and implementation of appropriate orientation and faculty mentoring programs;
 - Monitor, assess, and report on faculty activities;
 - Produce an annual report describing faculty work products/activities, research (grants applied for and awarded), clinical practice hours, and GSN/USU committee and community service; and,
- 3) Ensure equity across the two Departments. Each department should receive an equivalent number of researchers, clinicians, uniformed officers, civilian faculty, and support/administrative staff.

Future Considerations - May 2003 Faculty Retreat.

Following the December 2002 Faculty Retreat, two issues remained for further review: formulation of titles/labels for the two departments; and, the timing and process for implementing the proposed organizational/functional structure.

During the May 2003 Faculty Retreat, two department titles were proposed, voted upon, and selected by the GSN faculty. The following information provides concepts, subconcepts, focus areas and topics related to teaching, clinical scholarship and research, which were considered during the placement of the GSN faculty into the newly structured departments:

Department of Operations, Risk and Systems Management -

- Risk Anticipation and Management of Care (Austere Environment);
- Administration, Health and System Management;
- Health System Evaluation;
- Cultural/Geopolitical Assessment for Education/Training;
- Human/Provider Functioning in Adverse/Austere Environments;
- Infectious Disease Surveillance/Management for Disease Prevention (i.e., Women's Needs for Health and Sanitary Care in Austere Environment);
- Public Health Systems in a Global Terrorism Environment;
- Mission-Oriented Protective Posture Gear Research;
- Provider-Oriented Research;
- Patient Safety Systems Interventions;
- Interdisciplinary Management of Bioterrorism Situations at Home and Abroad;
- Population Health, Management of Diseases, Risk and Age Specific Conditions;
- Design of Health Education for Uniformed Personnel and the Public for Operational Readiness in a Global Terrorism Environment;
- Use of Technology for Health Systems Management and Change;
- Outcomes-Oriented Research Based on Systems Intervention(s);

Department of Health, Injury and Disease Management -

- Acute/Chronic Care Management;
- Individual/Patient-Oriented Care;
- Focus on Processes of Care and Intervention Research;
- Prevention and Health Promotion;
- Care Across the Continuum;
- Geriatric Care Interventions;
- Force Health Protection/Screening;
- Risk Assessment;
- Cultural Assessment for Culturally Competent Care (i.e., Women's Health in Combat);
- Outcomes from Individualized Health Care Interventions;
- Clinical Decision-Making: Care of Individuals in Austere Settings;
- Health/Safety/Readiness of Uniformed Personnel and Families;
- Individual Management of Uniformed Persons and the Public in Terrorist Situations;
- Outcomes-Driven Clinical Interventions - Disease Management of Populations;
- Use of Technology for Individual Health Care Interventions - Aggregated into Population-Based Care;
- Outcomes-Oriented Research Based on Individualized Intervention(s);
- Interventions for Injury Management;
- Risk Assessment and Screening; and,
- Health of Individuals in Austere/Adverse Environments.

The implementation of the new organizational structure began following the August 2003 Retreat; the first meetings under the newly organized department structure were held in October of 2003.

Scholarly Productivity of the GSN Faculty. Since the decision was made, in March of 2002, to institute a Ph.D. Program in Nursing at the GSN, a concerted effort has been made to recruit and retain senior faculty, maintain clinical practice expertise, and to increase scholarly productivity commensurate with the needs of graduate education at the Ph.D. level. Recruitment of doctorally-prepared faculty has been on-going, as new faculty will teach at both the MSN and the Ph.D. levels. As of March 2004, the 27 members of the GSN faculty (23 full-time; 1 part-time; and, 3 contractual) include 14 full-time faculty who are doctorally-prepared individuals; thus, 61 percent of the current 23 full-time faculty hold Ph.D. Degrees. In comparison, of the 19 full-time GSN faculty members on board during 2002, 8 individuals, or 42 percent of the 19, held Ph.D. Degrees. Significant collaboration and scholarly productivity continue to take place at the GSN (i.e., **2000**: 10 publications in peer-reviewed journals; 10 chapters in Pharmacology for the Primary Care Provider; and, two funded grants; **2003**: 19 publications in peer-reviewed journals; **2004**: 7 funded grants).

The following active and pending grants are selected examples of how the GSN faculty members are currently focusing their research across the vertical and horizontal spectrum of the newly established signature curriculum:

- *Physiological Monitoring for Military Nursing;*
- *Ethical Issues in Department of the Army Nursing Practice;*
- *Army Nursing Practice in Operations Other than War;*
- *Lifestyle Activity to Improve Fitness Among National Guard;*
- *Patient Safety: Reducing Risks for the Surgical Population; and,*
- *The Effect of Perceived Stress Coping Behavior, Previous Deployment Separation, and Defined Health Promoting Behavior on General Well-Being in Female Spouses of Active Duty Military during Deployment Separation.*

GSN Faculty Is Recognized for Integration of Technology Throughout the GSN Curricula.

Since its inception, the GSN has actively participated in educational and research activities at the National Capital Area Medical Simulation Center (SIMCEN). Over the past four years, the GSN faculty has collaborated with the SIMCEN faculty and staff to enhance the GSN programs through: the development of clinical cases utilizing the SIMCEN technology; presentations of the use of SIMCEN technology in education at the national level; and, SIMCEN-related research activities. This active participation has been widely recognized; for example, the Dean of the GSN and the GSN faculty were invited to participate in high-level strategic planning sessions during 2003 as the University reviewed its use of resources and support for the SIMCEN. In addition, the GSN was invited to present its SIMCEN-related technology initiatives for both its curriculum and research to the Centre for Medical Education located at the University of Dundee, Scotland (the Centre's leader, Doctor Ron Harden, is recognized as an expert in international medical simulation). In December of 2002, GSN faculty were invited to meet at the SIMCEN with members of the University of Michigan Consortium to discuss collaborative activities and possibilities for the future forging of technology/SIMCEN links among the disciplines of medicine, nursing, veterinary science, and dentistry. As noted in 2002, by the Evaluation Team from the Commission on Collegiate Nursing Education:

A state-of-the-art simulation center is available to the GSN and is equipped with 12 fully equipped patient treatment rooms with computer, video, and audio equipment. In addition, the simulation center has a distance education teleconference room, a computer laboratory, and an operating room simulation laboratory with manikin simulators and anesthesia equipment, which mimics that used in the military field. Virtual reality anatomy lectures are cutting edge and are available for approximately four anatomic systems. GSN students interviewed verbalized knowledge of the many resources available to them on campus and had overwhelmingly positive comments about the laboratories, libraries, simulation center, and virtual reality programs available to them for study.

Blackboard Acquisition.

The recent acquisition of a web-based *learning platform* was a significant milestone in the history of the GSN. From the initial discussions reference the establishment of a Doctoral Program at the GSN, it was envisioned that the program would be heavily web-supported. It was also acknowledged that the students applying for, and being accepted to the Doctoral Program, would be a unique representation of Federal Nurses. As a cohort, they are senior-ranking uniformed officers (O-4 and higher) with demanding responsibilities in the Military Health System. Those students choosing the part-time option understand that they are making a five-year commitment to the GSN and their graduate studies *in addition to* their assigned positions and responsibilities. During that five-year span, the GSN anticipates that many of its part-time students will be reassigned/deployed out of the National Capital Region; they will require consistent communication with the GSN via technology. Therefore, from the inception of the Doctoral Program, the GSN has been actively working toward the acquisition of a robust, web-based distance learning platform. As a major component of the program, the platform would have to support on-going interaction between faculty and students; it could not simply be an archival site for the storage of documents. Following a process of competitive bidding, the GSN acquired the *Blackboard Learning Platform*.

Initial faculty, staff and administrative training was conducted on January 12 and 13, 2004. By June of 2004, the first doctoral course will be web-enhanced and pilot-tested; and, by the Summer of 2005, it is anticipated that all of the doctoral courses and many of the master-level courses will be web-enhanced. Careful attention is being paid to the standardization of the *look and feel* elements of the portal and class interfaces so that students can quickly and easily navigate through the system, following orientation with the Blackboard technology. Tutorials for both faculty and students are under development; on-going administrative training is also underway.

Selected Profiles of Graduate School of Nursing Faculty.

Outstanding Uniformed Faculty Award. Major Lesa Tilley, MSN, CRNA, USAF, NC, Assistant Professor, GSN Department of Health, Injury and Disease Management, was selected by the GSN students to receive the Outstanding Uniformed Faculty Award at the May 2003 Graduation. The GSN students chose Major Tilley as the uniformed faculty educator who exemplified the highest qualities of a graduate nursing educator by personal example and performance.

Outstanding Civilian Faculty Award. Osvaldo Bustos, M.D., Ph.D., GSN Department of Health, Injury and Disease Management, was selected by the GSN students to receive the Civilian Faculty Award at the May 2003 Graduation. The GSN students selected Doctor Bustos as the civilian faculty educator who displayed the highest qualities of a graduate nursing educator by personal example and performance.

The GSN Associate Dean Position Was One of Transition During 2003.

The year began with **Colonel Martha Turner, RN, CNAA, BC, Ph.D., USAF, NC, Ethics Consultant to the Air Force Surgeon General,** serving in this position. She continued her activities as the Ethics Consultant to the Air Force Surgeon General and as a member of the TriService Nursing Research Advisory Council, while performing the duties of the Associate Dean for the GSN. Colonel Turner was reassigned in January of 2003, to head the USAF International Studies Program also headquartered at USU.

Patricia C. McMullen, DNSc, JD, CNS, CRNP, Associate Professor, was appointed to serve as the **Acting Associate Dean for the GSN** upon the departure of Colonel Turner. Doctor McMullen left the GSN during the Summer of 2003 to accept an Associate Dean position at Catholic University. During 2003, Doctor McMullen co-authored, Triage Protocols for Obstetrics and Gynecology, Lippincott, 2003, a symptom-based telephone triage protocol book for providers of women's health care. This publication was developed in response to research that indicates approximately 20-28 percent of all primary health care is handled over the telephone (Studdiford, Panitch, Synderman & Phass, 1996). Additionally, Doctor McMullen authored a chapter entitled, *Legal Issues in Critical Care*, for the 8th edition of Critical Care Nursing: A Holistic Approach. The chapter outlines fundamental legal principles in critical care and offers advice on how to both improve the quality of care and diminish legal liability. She was invited to speak on legal issues in nursing for the Regional Perinatal Nursing Conference in Bangor, Maine, and for the South Carolina Nephrology Nurses Association Conference in Charleston, South Carolina. In addition, Doctor McMullen, Doctor Seibert and Ms. Laurie Lemieux presented advanced case studies in women's health care at the National Nurse Practitioner Conference in Baltimore, Maryland. Doctor McMullen was an invited lecturer for the Nurse Practitioner Program at George Mason University in Fairfax, Virginia. Doctor McMullen also completed her multi-disciplinary research on conflict among older adolescents hospitalized as a consequence of violent incidents at a regional shock trauma center. Results of her research findings will be published over the course of the next year.

Karen L. Elberson, Ph.D., Associate Professor, GSN Department of Health, Injury and Disease Management, was recruited in July of 2003 to serve as the **Acting Associate Dean for the GSN**. Doctor Elberson's previous position was at East Carolina University, where she was a tenured Associate Professor. With a background in adult health, critical care, and nursing service administration, Doctor Elberson will continue her research in cardiovascular nursing. Due to her extensive background and expertise, Doctor Elberson also serves in the capacity of **Acting Director of the GSN Doctoral Program**.

GSN Assistant Professor Presents Research Findings to the National Organization for Nurse Practitioner Faculties. Diane C. Seibert, Ph.D., CRNP, Assistant Professor, GSN Department of Operations, Risk and Systems Management, has research interests in Women's Health and in technology-assisted learning. She recently completed her Ph.D. from the University of Maryland, College Park; her dissertation examined the effect of an engagement intervention in a course conducted entirely via video teleconferencing. She presented her findings at the National Organization for Nurse Practitioner Faculties in the Spring of 2002. In addition to that presentation, she was invited to speak at the National Institutes of Health on Hormone Replacement Therapy shortly after the Women's Health Initiative results were released. Additionally, she was invited to speak on Pap Interpretation and co-lectured with Doctor McMullen on Advanced Case Studies in Women's Health at a regional Nurse Practitioner Conference. She and Doctor McMullen are also collaborating on a Cystic Fibrosis Project for the Department of Defense. In addition, Doctor Seibert has served as the Task Force Leader for the GSN Faculty Structure Task Force.

Chair of the GSN Department of Health, Injury, and Disease Management Involved in Funded Research Projects. Barbara M. Sylvia, Ph.D., RN, Professor and Chair, Department of Health, Injury and Disease Management, has been involved in several funded research projects. As the principal investigator on a USU intramural funded project, she extended her work on prenatal care for military women from an earlier project funded by the TriService Nursing Research Program on which she was a co-investigator. Doctor Sylvia examined and compared the prenatal care of uniformed women within the continental United States (CONUS) versus care provided Outside CONUS (OCONUS). Using both qualitative and quantitative approaches, she examined prenatal care from the perspective of both the recipient and the provider. In addition, Doctor Sylvia recently completed a research project as a co-investigator on a project funded by the TriService Nursing Research Program to compare the effects of two methods of diabetes care on glycemic control. During the 2002 and 2003 Academic Years, Doctor Sylvia published two research articles: *Prenatal Care-Needs, Availability, Accessibility, Use and Satisfaction: A comparison of Military Women Within and Outside of the Continental United States*, in Military Medicine; and, *Exploration of Facilitators and Barriers to Prenatal Care Among Military Women in Nurse Practitioner Forum*.

Assistant Professor Is Principal Investigator in Funded Research Projects. Janice Agazio, Ph.D, CRNP, Assistant Professor, GSN Department of Health, Injury and Disease Management, is currently involved in several funded research projects. She is the principal investigator on two projects. The first, *Army Nursing Practice in Operations other than War*, was funded by the TriService Nursing Research Program and will describe needed competencies and skills for deployed nurses. The second, *Deployment of Military Mothers*, received intramural funding to describe the trajectory of the deployment experience (preparation through reunion and reintegration) for active duty women with children. Doctor Agazio continues as a co-investigator on a TriService Nursing Research Program funded study, *Ethical Issues in the Department of the Army Nursing Practice*, which will provide information on: the ethical issues experienced in the workplace by military and civilian registered nurses; and, ethical education requirements. Doctor Agazio is completing an analysis on two unfunded studies, *Health Promotion in*

Military Women and Experiences of Medical Personnel in Operation Desert Shield/Storm. During the 2002 and 2003 Academic Years, Doctor Agazio had two research articles accepted for publication in Military Medicine: *Evaluation of a Virtual Reality Simulator in Sustainment Training* and *The Effects of Non-Local Geographically-Separated Hospitalizations Upon Families*. Additionally, she presented her paper on the use of a VR Simulator in sustainment training at the national State of the Science Congress in September of 2002.

Lieutenant Colonel (P) Linda J. Wanzer, AN, USA, MSN, CNOR, Assistant Professor, GSN Department of Health, Injury and Disease Management, and Director, Perioperative Clinical Nurse Specialist Track, joined the GSN faculty in September of 2002. Prior to her arrival, LTC Wanzer served as the Chief of the Operating Room and Central Material Supply for the Landstuhl Regional Medical Center. While serving in Europe, LTC Wanzer was designated to fill the role of Perioperative Consultant for Readiness Issues in support of the 212th MASH contingency and training missions - certifying surgical readiness prior to the receipt of surgical patients to ensure that the standard of care was met throughout the field environment. Additionally, LTC Wanzer has led the way in patient safety innovation and productivity at the unit, institution, and regional levels. Her efforts at the unit level spearheaded institution and region-wide standardization efforts focused on the creation of a non-punitive environment for reporting medical errors and the establishment of a process for improving “systems/processes.” Numerous perioperative risk aversion/patient safety initiatives instituted by LTC Wanzer were highlighted during 2002 in the book written by Jean Reeder - Patient Safety: A Perioperative Competency Module; her work was also published as a guide on the Association of Operating Room Nurses (AORN) web-page. Since 2001, LTC Wanzer has served as an advisor to the Army’s Perioperative Consultant to the Surgeon General. She has blended theory with practice in her review of new initiatives from MEDCOM as well as using metrics formulation related to access-to-care standards and patient safety metrics for the perioperative field. LTC Wanzer was selected to be a member of the AORN Presidential Commission for Patient Safety, serving since 2002. As such, she interfaces with the entire perioperative community inclusive of the American College of Surgeons and the American Nursing Association to develop and standardize patient safety initiatives. During 2003, LTC Wanzer was invited by the TriService Nursing Research Program to participate in a “Grant Camp” to develop a grant examining critical issues encountered in the operating room environment. She recently finalized her grant application and submitted it to the TriService Nursing Research Program for consideration for funding.

GSN GRADUATE PROGRAMS.

Since the Summer of 2003, the GSN has offered two Graduate Programs at the Master and Doctoral Degree levels. The Master of Science Degree in Nursing Program has three areas of focus: Family Nurse Practitioner; Nurse Anesthesia; and, Perioperative Clinical Nurse Specialist. The Doctor of Philosophy in Nursing Program prepares nurses in research, education, and leadership as required by the Military Health System, the United States Public Health Service, and other Federal Health Systems.

MSN Degree Program - Family Nurse Practitioner.

Background. The first formal training program to prepare advanced practice (pediatric) nurses was established in 1960. In 1967, public health nurses received advanced training to care for patients in their homes. Nurse practitioners were initially taught to take a full medical history, conduct a comprehensive physical examination, and oversee the use of medications. Eventually, nurse practitioners were performing those activities in the offices of the physicians with whom they worked.

In 1977, the Medicare statute was amended to allow nurse practitioners to provide primary care independently in underserved rural areas. Nurse practitioner programs grew quickly; and, advanced practice nurses found work in hospital-based clinics, providing care to underserved patients. In 1994, the National Advisory Council on Nurse Education and Practice for the Health Resources & Services Administration of the Department of Health and Human Services identified the need to upgrade the knowledge, skills, and abilities of the existing registered nurse work force to match the practice requirements within today's health care systems. Currently, every state gives nurse practitioners some level of pharmaceutical prescribing authority.

In 1995, the Institute of Medicine engaged in an inclusive study, *Primary Care: America's Health in a New Era*. The study provided the following definition: primary care is the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community. Today, through advanced education and training in the science of disease prevention, health promotion, health education, and community and home-based care, the advanced nurse practitioner is recognized as an essential member of the health care team.

The American Association of Colleges of Nursing continues to report that the demand for advanced practice nurses is increasing. Current demands across the country are for advanced practice nurses who can deliver a high complexity of care across the projected life-span of their patients within an integrated health care system. The current shortage of advanced practice nurses who are qualified to assess, diagnose, and manage patients in primary care settings has also been confirmed. In light of this, the nursing community is dedicated to ensuring that the existing nurse practitioner programs are of the highest quality and that they meet or exceed all educational standards and credentialing safeguards established by the National Organization of Nurse Practitioner Faculties and the credentialing entities of the National League for Nursing.

Program Assessment. The GSN curriculum is guided by the USU and GSN mission statements and the American Association of Colleges of Nursing's (AACN, 1996) *The Essentials of Master's Education for Advanced Practice Nursing*. Nineteen GSN terminal objectives are encompassed under six headings, applicable to both nurse anesthesia and nurse practitioner practice. The AACN *Essentials* document has identified core content areas for all Master Degree Programs as well as three additional areas specific to Master Degree Programs for advanced practice, direct-client clinical care. Because of the unique practice requirements for USU graduates as uniformed officers, the GSN faculty has included an additional terminal objective heading, "Readiness," which is not included in the AACN *Essentials* document. *The Essentials of Master's Education for Advanced Practice Nursing* articulates well with the *Domains and Competencies of Nurse Practitioner Practice*, as outlined by the National Organization of Nurse Practitioner Faculties (NONPF, 2000). The practice of the nurse practitioner is also reflected in a nationally accepted measure of quality of practice that is found in the NONPF, *Domains and Competencies of Nurse Practitioner Practice*. The GSN nurse practitioner curriculum is designed to prepare graduates to practice according to those specialty standards. Graduates from the GSN Master of Science in Nursing Program options of: Family Nurse Practitioner; Post-Master Family Nurse Practitioner; and, Post-Master VA/DoD Adult Nurse Practitioner are able to sit for all applicable nurse practitioner national certification examinations.

Family Nurse Practitioner - GSN MSN Program Option - One of the Nation's Best. The Family Nurse Practitioner (FNP) option within the GSN MSN Program has had nine graduating classes from 1995 through April of 2004, with a total of 103 graduates, which includes the 7 nurses who earned their MSN Degrees through the GSN Distance Learning Program. The GSN FNP is one of the strongest programs in the country, as evidenced by the certification examination pass rate of its graduates. Over 98 percent of the GSN FNP graduates have consistently passed the AACN National Certification Examination on their first attempt, as compared to the national average of a 70 percent pass rate on the first attempt. The FNP Program option now has more than 90 clinical practice sites. The FNP Program option is currently 24 months in length, and with the addition of the 6-credit Military Contingency Medicine Course, now totals 65 academic credits with over 900 hours of clinical experiences. (In June of 1999, FNP was increased from 21 to 24 months to allow for the integration of women's health competencies as recommended by the Federal Nursing Chiefs; initially, FNP was 21 months in length and included 720 hours of clinical experience.) There are currently 8 students in the Family Nurse Practitioner Class of 2005; and, 7 students in the Class of 2004. Of these 15 students, 12 student officers are from the Army; 1 student is from the Navy; and, 2 students represent the United States Air Force.

The GSN FNP Graduates are able to: assess, design and implement an appropriate plan for individualized patient and family care; collaborate within multi-disciplinary Federal health care environments; design and provide appropriate patient education; integrate research findings into clinical practice; utilize safe practices and ethical perspectives in their clinical practice; and, readily adapt to the changes and demands of individual and environmental health care. Students are able to pass certification examinations on their first attempt, as released on February 26, 2002, by the American Nurse Credentialing Center: ***"of the 15 Family Nurse Practitioners tested, all 15 passed with a mean score of 123.3, the highest ever achieved. The national average for all tested reflects a mean score of 114.6; the passing score is set at 100."***

Scholarly Project. Each FNP graduate must complete an individual or group thesis or scholarly project before graduation. The student's research project generally has application to the practice of the nurse practitioner and includes both quantitative and qualitative research, surveys, and clinical studies. All topics must be relevant to the Uniformed Services and serve to enhance the clinical practice of the graduate; a GSN research committee ensures that each scholarly project meets the USU requirements for a Master of Science Degree. All students are encouraged to publish their findings. During 2003, students were involved in a variety of scholarly projects; and, they were encouraged to publish in peer-reviewed journals or to give poster and oral presentations of their findings. An emphasis is placed on outcomes and how they may be incorporated into future practice.

Student Research Projects:

Student	Title of Scholarly Project
CPT Cornali	<i>Hypertension, Hyperlipidemia, and Diabetes Rates in Military Women</i>
CPT Crouch	<i>Health Promotion in Reserve Component Women</i>
CPT Gainok	<i>Extended Oral Contraceptive Therapy</i>
CPT Glidewell	<i>Mass Casualty and Disaster Preparedness Training (DPT) in the DiLorenzo TRICARE Health Clinic at the Pentagon</i>
CPT Mullen	<i>Diabetes Self-Management Abstract for PHS 398</i>
CPT Reilly	<i>Ethical Dilemmas Identified by Department of the Army Nurses During Deployments</i>
CPT Riordan	<i>Extended Oral Contraceptive Therapy</i>

Simulated Patient Experiences. In addition to traditional classroom and clinical activities, FNP has partnered with the National Capital Medical Simulation Center (SIMCEN) to integrate objective simulated clinical examinations into all major courses. These simulations have proven extremely beneficial on two fronts: they facilitate faculty evaluation of each student's mastery of critical clinical skills; and, they permit each student to develop and enhance necessary clinical skills in a non-threatening environment. The use of simulated patient experiences begins during the students' initial Health Assessment Course. In this course, students review foundational assessment skills, such as history-taking and the physical examination of all major body systems. Following didactic anatomy lectures and corresponding cadaver laboratories, students receive in-class instruction on the assessment of each of the body systems. They then proceed to the SIMCEN where they practice their assessments in collaboration with specially trained patient-actors (simulated patients). During these experiences, faculty and peers use one-way mirrors and telemonitors to evaluate each student's performance. After each encounter,

peers and faculty provide a critique resulting in immediate and valuable feedback. SIMCEN experiences are also videotaped so that students and faculty can review them and receive additional instruction and guidance. Over the course of the 24 months, students are exposed to additional simulation experiences in the form of Objective Simulated Clinical Evaluations (OSCEs) in their Adult Health, Pediatric, Women's Health and Practicum Courses. Over time, scenarios become increasingly more complex.

Clinical Sites at Military Treatment Facilities. Since its establishment, FNP has completed memoranda of understanding with 17 military treatment facilities: (**Army - 6**) DeWitt Army Community Hospital, Fort Belvoir, Virginia; Kimbrough Ambulatory Care Center, Fort Meade, Maryland; Walter Reed Army Medical Center, Washington, D.C.; Fort Carson Army Community Hospital, Fort Carson, Colorado; Womack Army Medical Center, Fort Bragg, North Carolina; Darnell Army Community Hospital, Fort Hood, Texas; (**Navy - 6**) Annapolis Naval Medical Clinic, Annapolis, Maryland; National Naval Medical Center, Bethesda, Maryland; Quantico Naval Medical Clinic, Quantico, Virginia; Naval Ambulatory Care Center, Groton, Connecticut; Portsmouth Naval Medical Center, Portsmouth, Virginia; Pensacola Naval Hospital, Pensacola, Florida; (**Air Force - 5**) Malcolm Grow Medical Center, Andrews Air Force Base, Maryland; 1st Medical Group, Langley Air Force Base, Virginia; 60th Medical Group, Travis Air Force Base, California; 10th Medical Group, Air Force Academy, Colorado Spring, Colorado; and, the 375th Medical Group, Scott Air Force Base, Illinois. Additionally, FNP has affiliations with 90 non-DoD, Federal and civilian treatment facilities. These facilities provide the backbone for the nurse practitioner student's clinical experiences.

Faculty Activities. FNP faculty maintain certification and clinical acumen by working one day each week in a clinical setting. By maintaining a clinical practice, FNP faculty remain current, expand their clinical skills and frequently have the opportunity to observe and mentor students. These faculty are also active within the GSN, the University, and their local communities. FNP faculty perform a myriad of services to outside agencies by serving: on church advisory boards; in parent-teacher associations and Girl Scout Troops; as guest lecturers at local universities; and, as teachers of Lamaze Classes. In addition to their community service, FNP faculty maintain membership in many professional organizations, including the American College of Nurse Practitioners, the Commission on Collegiate Nursing Education (Site Evaluator), the Nurse Practitioner Association of Maryland, several State Bar Associations, the North American Menopause Society, the National Organization of Nurse Practitioners Faculties, and the Sigma Theta Tau Honor Society.

The Year 2002 was a *watershed year* for FNP when three faculty members completed their requirements for Doctoral Degrees. In May of 2002, Doctor Diane Seibert received a Ph.D. in Human Development from the University of Maryland, College Park. Doctor Patricia McMullen completed a DNSc from the Catholic University of America in November of 2002; and, Doctor Cindy Grandjean completed a Ph.D. in Human Development at the University of Maryland, College Park, in December of 2002. During 2003, Ms. Diane Padden finished the didactic portion of her Ph.D. Program and is expected to complete all requirements for her Doctoral Degree during 2004. Upon the granting of her degree, all civilian faculty members in the GSN will hold Doctoral Degrees.

MSN Degree Program - Nurse Anesthesia.

Background. Nurse anesthetists have faithfully served their Nation during all of its wars and conflicts and during times of peace throughout the 20th Century. During the late 1800's, Doctor Charles Mayo appointed Alice Magaw, his nurse anesthetist at St. Mary's Hospital in Rochester, Minnesota, as the *Mother of Anesthesia*. She was a talented anesthetist at a time when people from all over the world came to the Mayo Treatment Center to learn from its physicians and nurses about anesthesia. In fact, the United States Army sent nurses to Doctor Mayo to study anesthesia before the Nation entered World War I.

Nurse Anesthetists provided anesthesia during World War I and served in Combat Clearing Stations near the front lines in France; they taught French nurses and physicians to do anesthesia, and with the concurrence of British physicians, taught British nurses to provide anesthesia; thereby relieving over 100 physicians to do other medical and surgical work. During World War II, four nurse anesthetists were among the nurses captured in the Philippines, having provided anesthesia services in the jungles of Bataan and on Corregidor until the ether, other drugs, food, and ammunition ran out. Nurse Anesthetists served with distinction throughout every operational theater in WWII; they were at Anzio, Salerno, on board Navy ships, and went into Normandy with the first hospital.

Nurse anesthetists also served proudly during the Korean War, in Vietnam, Granada, Panama, Somalia, Desert Storm, Operation Enduring Freedom, Operation Iraqi Freedom, and other military missions requiring anesthesia capability. Throughout the past Century, physicians and nurse anesthetists have successfully worked together during times of war, humanitarian operations, and in civilian practice.

Nurse Anesthetists, among the first to incorporate the Harvard Monitoring Standards, consistently follow the philosophy that the nurse anesthetist has a duty to the patient he/she anesthetizes, to stay with the patient and to provide continuous care and monitoring. While most professional certifications for nurses were started in the 1970's, the Nurse Anesthesia Certification Program has existed since 1945. Specialty nursing certification has grown significantly over the last two decades. A study conducted by the Nursing Credentialing Research Coalition and released in February of 2000, found that certification has a dramatic impact on the personal, professional, and practice outcomes of certified nurses. Specifically, the study stated that certification is a successful approach to improving patient safety and the overall quality of care. In addition, the practice of anesthesia is much safer today due to the advancing knowledge and technology, which allow every one in the operating room, from the surgeon to the nurse anesthetist, to the technician, to perform his, or her, job more efficiently.

Program Assessment. The Terminal Objectives of the Nurse Anesthesia (NA) option in the MSN Degree Program are consistent with the missions of the USU and the GSN and with the *Essentials of Master's Education for Advanced Practice Nursing*, as accepted by the American Association of Colleges of Nursing (AACN, 1996). Additionally, the NA Terminal Objectives are in accordance with the American Association of Nurse Anesthetists' (AANA, 1996) *Standards of Nurse Anesthesia Practice*. The GSN graduates of Nurse Anesthesia are able to perform the following: a thorough pre-anesthetic assessment; obtain informed consent; formulate and implement a patient-specific plan for anesthesia care; collaborate with other members of the health care team; and, transfer the responsibility for care.

The GSN Nurse Anesthesia option, within the MSN Degree Program, has had eight graduating classes from 1996 through April of 2004, for a total of 104 graduates. Thirty-nine students are currently enrolled; Nurse Anesthesia is 30 months long with 55 academic credits. Nurse Anesthesia students average 65 clock hours at clinical sites each week; and, they complete 940 anesthetic cases during their program of study. In December of 2003, 10 students graduated from Nurse Anesthesia. All have passed the National Certification Examination for nurse anesthetists and are credentialed to practice in their respective Services. **An astounding seven of these ten graduates attained a perfect score of 600 on the National Certification Examination in 2003!** At least five alumni from this group deployed within two months of their graduation to support the Armed Forces in Iraq. The Nurse Anesthesia Class of 2004 has 19 students; and, the Class of 2005 has 20 students. Of the 39 students, six students are Army officers; six are Navy officers; twenty-six student officers are from the Air Force; and, one student officer represents the Public Health Service. It is anticipated that the next class will have 24 students.

Upon completion of the Nurse Anesthesia option, the NA faculty are committed that, either through the oral examination process or actual demonstration on any patient or selected pieces of equipment, the nurse anesthesia graduate will have the ability to: comply with USU GSN requirements for graduation; meet, or exceed, Council on Certification of Nurse Anesthetists Case Requirements; satisfy eligibility requirements to write the Certification Examination; obtain the academic capability to pass the Certification Examination; successfully master the Terminal Objectives; and, be able to meet the mission of Nurse Anesthesia at USU.

Clinical training was restructured within Nurse Anesthesia to ensure that all students are assigned to a military hospital as their primary clinical training site. A clinical coordinator is assigned at each site whose primary responsibility is to oversee student scheduling and to evaluate their progress; this oversight responsibility has increased consistency in the evaluation and scheduling of the rotations. In addition, the site coordinators participate in all faculty meetings, maintain student records, and complete other administrative activities associated with running the clinical training.

Scholarly Project. Each graduate must complete an individual, group thesis, or scholarly project before graduating from the GSN. The student's research project generally has application to anesthesia practice and includes bench studies, both quantitative and qualitative research, surveys, and clinical studies. All topics must be relevant to the Uniformed Services and serve to enhance the clinical practice of the graduate. Students are encouraged to publish in peer-reviewed journals or to give poster and oral presentations on their findings. During 2003, students were involved in a variety of scholarly projects, including both clinical and bench research studies; and, increased emphasis was placed on conducting quantitative studies.

In the Spring of 2003, **Lieutenant Colonel Bruce Schoneboom, AN, USA, CRNA, Ph.D. (USU Neuroscience Graduate Education Program Class of 2000), Assistant Professor and Chair, GSN Department of Health Systems, Risk, and Contingency Management**, joined Nurse Anesthesia as the Research Director. Lieutenant Colonel Schoneboom has increased the tracking of the scholarly projects and has made visits to each clinical site to ensure that all of the students are completing their research projects. In addition, Lieutenant Colonel Schoneboom has established relationships with leading military and civilian experts in the areas of intravenous anesthesia and pain management, which will increase the research opportunities for the Nurse Anesthesia students. Upon returning to campus prior to entering the

last six months of their clinical rotations, Nurse Anesthesia students are encouraged to submit posters for presentation; and, students are required to present an oral defense of their research to meet the course requirements.

Simulated Patient Experiences. The use of a patient simulator and the instructions for using regional anesthesia and central line placement have been incorporated, wherever possible, into the Nurse Anesthesia curriculum. This has resulted in providing a bridge between the academic and clinical phases of the educational experience. During 2002 - 2003, the use of the SIMCEN was expanded to incorporate: 1) the use of standardized patients in the Health Assessment Course; 2) the use of simulator bronchoscopic stations in teaching airway management; and, 3) the use of the human patient simulator for teaching Basic and Advanced Principles of Anesthesia and Anesthesia Pharmacology. Other resources have allowed the use of virtual reality in teaching the Anatomy Courses; and, research studies are being conducted by the students and faculty to determine the quality of education utilizing virtual reality and the desirability for its use in the future. A faculty member of Nurse Anesthesia, in collaboration with faculty at Harvard University, worked on the use of the Anesthesia Simulator; and, a second laboratory section of the Patient Simulator Laboratory was instituted in conjunction with the Advanced Principles Course, which allows an increase of individualized instruction through the use of this state-of-the-art simulator.

Clinical Sites at Military Treatment Facilities. Nurse Anesthesia has four primary military clinical training sites: 1) the Air Force Medical Center at Wright Patterson Air Force Base, Ohio; 2) the Walter Reed Army Medical Center/National Naval Medical Center (a joint site as is the Anesthesiology Program) in Washington, D.C./Bethesda, Maryland; 3) the Naval Medical Center at San Diego, California; and, 4) the Air Force Medical Center at Keesler Air Force Base, Mississippi. Nurse Anesthesia students also rotate to 21 Federal, civilian, and non-DoD health centers to obtain additional experience and complete required cases. A full review of all primary and non-primary clinical sites was completed during 2003 as part of the recently successful re-accreditation process. In June of 2004, the Navy Nurse Anesthesia students will also begin to use the Naval Hospital Jacksonville as a clinical site.

Faculty Activities. Continuous changes have occurred over the past year to enhance Nurse Anesthesia at the GSN. Communication has been enhanced by the creation of web-based bulletin boards, which allows for seamless communication between the students, faculty, and staff. In addition, password-protected educational materials are also posted, which allow the students to access a variety of material from any Internet-capable computer. The research component of the program is evolving from a thesis-based product to one more easily disseminated to the CRNA community. Increased emphasis is being placed on conducting quantitative studies and on presenting results through poster and oral presentations and publishing in professional journals.

While Nurse Anesthesia graduates have performed well on their National Certification Examinations, there were areas identified for enhancement. Two anesthesia simulators have been successfully integrated into the Principles of Anesthesia Courses. Both of the simulators, located in the USU School of Medicine Department of Anesthesiology and at the SIMCEN, are used many times per week to enhance student learning; and, changes in the curriculum, specifically regarding Pharmacology, were integrated during the Fall 2002 Semester. Computerized testing is being developed and will provide

an inclusive review of the required material for students in their clinical phase. Other testing venues, such as oral boards, are also being developed. The Student Evaluation Examination (SEE) is being purchased for all students for use at two separate times during their training for assistance in determining future areas of concentration and study. In addition, numerous testing strategies have been incorporated by the faculty into both the clinical and didactic phases of Nurse Anesthesia. In appropriate courses, examination questions were converted to a format similar to that found in the National Certification Examination; and, an Internet-based testing system has been adopted. Although the new testing system does not have the capabilities of a computer-adaptive examination, it is formatted similar to that found in the National Certification Examination. For example, once a question is answered and submitted, the student may not return to it to change the answer. Test statistics and examination grades are provided immediately upon the completion of each examination.

The Nurse Anesthesia Curriculum Committee meets on a yearly basis and reviews all courses, course evaluations, and course content. Changes were recommended to further integrate the basic sciences, primarily Pharmacology, with the Principles of Nurse Anesthesia. Anesthesia Pharmacology is now introduced during the second semester, vice the third; this allows more depth of knowledge to be presented in the Basic Principles of Anesthesia Course. The Medical Pharmacology Course, taken with the medical students, has been modified and feedback from members of the Class of 2004 indicates that the modifications, which increased the number of topics more specific to the practice of anesthesia, were beneficial.

A new educational experience for senior students has also been developed. During the Spring of 2003, the Nurse Anesthesia Class of 2003 returned to the University for a series of seminars and workshops. Classes on regional anesthesia were conducted on cadavers in the USU Anatomical Laboratory. Advanced techniques were presented; and, students discussed difficult or significant cases that they had encountered at the clinical sites. An advanced airway workshop was presented; various adjunct equipment used for the management of the difficult airway was made available for practice on the patient simulator and other mannequins, to include the fiberoptic, Bullard laryngoscope, retrograde intubation, tube changers, the Combitube, and the Fastrach/LMA. Another laboratory allowed students to practice emergency surgical airways such as jet ventilation, cricothyrotomies and tracheostomies.

Crisis management was practiced and tested on the patient simulator. Students were given a series of scenarios to study prior to the testing period such as bronchospasm, MH, total spinal, and anaphylaxis. Students were then brought into the simulation area and experienced a realistic scenario; immediate feedback was given to each student upon completion of the exercise.

MSN Degree Program - The Clinical Nurse Specialist.

Background. In June of 2001, a need for a Clinical Nurse Specialist (CNS) option in the GSN MSN Degree Program was identified by the Federal Nursing Chiefs; and, the groundwork was completed to begin the development of the first Clinical Nurse Specialist option with a focus on Perioperative Nursing. A feasibility study and development of a pilot program were completed and recognized by the Federal Nursing Chiefs. In January of 2002, Founding Dean Abdellah and the GSN Associate Dean presented the CNS option to the USU Executive Committee; that request was approved by the Surgeons General of the Army, Navy and Air Force. The CNS option was then approved by the USU Board of Regents during its meeting held on February 27, 2002. In the Spring of 2002, a selection process was initiated to identify the Clinical Nurse Specialist Director and supporting faculty from within the three Uniformed Services. The CNS Director arrived in the Fall of 2002. The program's curriculum and foundational structure were built around the American Academy for Colleges of Nursing publication on *Essentials of Masters Education for Advanced Practice Nursing*. The perioperative specialty content evolved from a comprehensive process of blending field research, program goals, and clinical expert interviews with the Federal Nursing Chiefs. Validation of the program's content/curriculum was accomplished through the process of merging program content with the published *Association of Operating Room Nurses Perioperative Clinical Nurse Specialist (PCNS) Competencies*. After minor adjustments were made, the "content map" was presented to key senior leaders within the perioperative community, both in the uniformed and civilian sectors, to ensure that the CNS option would be congruent with the needs of the Uniformed Services.

Program Assessment. Within this new program option, six new courses were developed and implemented in adherence with the guiding principles established by USU, GSN mission statements, the American Association of Colleges of Nursing's (AACN, 1996) *The Essentials of Master's Education for Advanced Practice Nursing*, and both the National Association of Clinical Nurse Specialists (NACNS) and the Association of Operating Room Nursing Advanced Practice competencies and outcomes. To date, course outcomes and programmatic evaluations have met with resounding success in preparing these graduates to practice in accordance with specialty standards.

Clinical Nurse Specialist (CNS) - GSN MSN Program Option Focused on Perioperative Nursing - the ONLY Perioperative CNS Program in the Nation. The Perioperative Clinical Nurse Specialty (PCNS) option within the GSN MSN Program began with the Class of 2005 in June of 2003, with a combined total of eight students from the three Services (Army - 3; Navy - 2; and, Air Force - 3). The Class of 2006, which will begin in June of 2004, is projected to consist of nine students representing the TriServices (Army - 2; Navy - 3; and, Air Force - 4). In support of establishing a premier program, an attempt has been made to maximize programmatic use of the resources unique to the National Capital Region. Adjunct faculty have been identified throughout the Region/Nation, across Service lines, and within industry, to augment the on-site perioperative team, which will allow the expansion of the breadth and depth of both the clinical and specialty-specific learning outcomes for the GSN PCNS Master students.

Scholarly Project. Each PCNS student must complete an individual or group thesis or scholarly project before graduating from the GSN. The students' choices of research projects are focused on topics relevant to the Uniformed Services; topics must be aligned with the GSN research focus; and, they must be targeted to enhance clinical practice within the specialty. All students are encouraged to publish in a peer-reviewed journal and/or to give poster and oral presentations on their findings. The Class of 2005 has formed three research groups; each group is exploring a quantitative or qualitative research methodology to answer a *systems*-related question surrounding: clinical decision-making; patient safety; population health; infection control; and/or, change adaptation within the perioperative setting. To assist this process, the incorporation of dedicated Research Directors, who will focus research around relevant content for each program, was newly established during 2003. The goal of the Research Directors is to guide the GSN students through the research process and support scholarship as a foundational structure for earning the advanced degree.

Simulated Patient Experiences. The incorporation of simulated patient experiences as a learning activity for the first PCNS students took place in the Advanced Health Assessment: Clinical Correlates for Perioperative CNS Practice Course. This course proved to be a foundational course offered to Clinical Nurse Specialists during their first nine-week summer semester; the course challenged student's critical thinking and clinical decision-making abilities as applied to perioperative patients in the traditional and operational health care environment. Utilizing *Standardized Patients*, students were evaluated on: interviewing skills; collaboration with interdisciplinary health care providers; and, critical assessment knowledge in the development of perioperative care plans. With the assistance of *Standardized Patients*, this course provided a venue for students to effectively manage surgical patients and positively influence outcomes, both of which are vital roles of the advanced practice nurse.

Clinical Sites at Military Treatment Facilities. All PCNS students are assigned to a military hospital as their primary clinical training site. There, in consultation with their clinical preceptors, they receive focused, clinical experiences and complete projects within the five CNS domains. Currently, the PCNS option is utilizing four primary military clinical training sites located within the National Capital Region: 1) the Walter Reed Army Medical Center, Washington, D.C.; 2) The National Naval Medical Center, Bethesda, Maryland; 3) the Malcolm Grow Medical Center, Andrews Air Force Base, Maryland; and, 4) the Dewitt Community Hospital, Fort Belvoir, Virginia. As indicated, a clinical coordinator oversees student scheduling and evaluates progress. In addition to the traditional clinical experiences within the military treatment facilities, experiences with industry and associated military support sites are also provided (some examples include: Region 1 TriService Standardization; Facilities Design - Office of the Surgeon General; the Joint Commission on Accreditation for Health Care Organizations; Manpower Regionalization; the Joint Readiness Clinical Advisory Board at Fort Dietrick, Maryland; United States Pharmacopoeia; and, Kaiser Permanente in San Francisco, California).

Faculty Activities. During the development and implementation phase, all components in support of the students' learning experiences were developed. Communication mechanisms for both the faculty and students were created in the form of a password-protected, web-based bulletin board, which serves as a *one-stop-shop* for the PCNS students for obtaining their course syllabuses, class outlines,

and educational/lecture materials. A *Patient-Safety* resource site was also established, especially for the PCNS students and placed on the Learning Resource Center (LRC) web site to facilitate specialty projects throughout the PCNS option.

Evaluation Structure. An evaluation structure for the PCNS option has been established; it provides both the students' evaluations along with the course coordinator's evaluations immediately following the final examination. This process ensures an inclusive review of the course, to include immediate feedback from the entire PCNS faculty, which orchestrates course changes and enhancement. During the review process, the course coordinator provides a CD complete with the course syllabus, class competency outcomes and learning activities, PowerPoint lectures, and handouts to be archived for future use.

Teaching Across Programs. Key to the success of the PCNS option is the *leveling of course content* to ensure consistency with the GSN terminal objectives. Dean Hinton Walker has maximized the faculty resources of the GSN by *actualizing* the faculty in terms of course development, thus fostering an organizational climate supporting the theory of *teaching across programs*.

The Doctor of Philosophy Program.

Background. To meet an evolving requirement for nursing research relevant to the MHS, the USPHS, and other Federal Health Systems, in March of 2002, with the approval of the Federal Nursing Chiefs, the GSN Founding Dean began the process for the development of a Doctoral Program in Nursing. The GSN Doctoral Program prepares nurses to be uniquely qualified as leaders in research, education, and clinical practice to serve in the MHS, USPHS, and other Federal Health Systems. In the context of concerns over patient safety, nursing research must be conducted to assess the linkages between nurse staffing, safety, and outcomes assessment throughout the TRICARE Management Activities. Additionally, with the well-recognized national shortage of both staff nurses and nursing faculty, GSN doctoral graduates must be prepared to augment faculty requirements at educational organizations and to serve as researchers for studying health care in the MHS, USPHS, and other Federal Health Systems. ***A doctoral program that has a focus on the MHS as well as the USPHS and other Federal Health Systems is not available at civilian universities; no other institution is better positioned than the USU GSN to provide a Doctoral Program with such a unique focus.***

Dean Hinton Walker presented the GSN Doctoral Program to the USU Board of Regents (BOR) and received formal approval for the establishment of the Doctoral Program at the BOR meeting held on October 24, 2002. In addition, the GSN held inclusive focus sessions to determine both the interest and support for its proposed Doctoral Program, to include the initiation of steps for the enrollment of its Charter Class during 2003. The Doctoral Program in Nursing is open to DoD nurses (active duty, reserve, and civilian) and to nurses from other Federal agencies who are nominated and supported by their Service or Agency. The new program accommodates both full-time and part-time students and incorporates aspects of both distance and alternative learning, as appropriate. The GSN welcomed its first doctoral students in the Fall of 2003. Three students (Army - 2; Agency for Health Care Research and Quality - 1) were admitted into the full-time program; they are expected to complete their degree requirements by 2006. Ten students (USPHS - 4; Veterans Administration - 2; Reserves - 4) matriculated into the part-time option; they are expected to complete their degree requirements by 2008.

The Doctoral Program in Nursing Science includes a common core of required courses and electives. The program consists of five areas of concentration: 1) *Nursing Knowledge*; 2) *Research Methods, Statistics, and Designs*; 3) *Cognate Courses*; 4) *MHS and Federal Health Care Policy and Issues*; and, 5) the *Dissertation*. The *Nursing Knowledge Core Content* consists of a sequence of courses focusing on the development and application of theory in nursing and related disciplines and ethical conduct in nursing practice and research. *Research Methods, Statistics, and Designs Core Courses* examine approaches in both qualitative and quantitative research. Advanced research methods core courses address relevant issues of the MHS, the USPHS and other Federal Health Systems via existing large data sets, while assisting graduates in developing continuing programs of research. *Cognate Courses* support and strengthen the selected research focus. *MHS and Federal Health Care Nursing Policy and Issues Core Courses* focus on MHS-specific and Federal health care issues, thus preparing graduates to conduct research and to assume leadership roles in this area of study. These four components culminate in the fifth component, the *Dissertation*, which follows the successful completion of the qualifying and comprehensive examinations. A minimum of 62-69 semester hours is required to complete the program. The GSN doctoral program is comparable in structure to the existing USU School of Medicine Graduate Education Programs and comparable in quality to other Ph.D. programs in Schools of Nursing across the Nation.

The curriculum has three focused research and practice areas. These include: 1) Population Health and Outcomes; 2) Operational Readiness in a Changing Environment; and, 3) Clinical Decision-Making in the MHS, the USPHS, and other Federal Health Care Systems. There is also a cross-cutting emphasis on patient safety and force protection, leadership, global / cultural health, the impact of technology, and research for evidence-based practice and policy.

All doctoral students will participate in structured research assistantships that address current and future nursing requirements. Proposed practicum experiences include research-focused experiences in the National Capital Area at DoD, USPHS, or other Federal Agencies with uniformed nurse researchers or at civilian health care facilities. To address current and future nursing requirements, teaching assistantships will also be offered to prepare some GSN graduates as educators in response to the ever-increasing national shortage of doctorally-prepared faculty.

MSN Degree Program - Post-Master Certificates.

The Post-Master FNP Certificate. The Post-Master (PM) Certificate was established in 1999, primarily in response to the Army Nurse Corps' decision to transition from a specialty nurse practitioner to a family nurse practitioner focus. As the transition progressed, the number of students in the PM option varied, with the GSN annually awarding certificates to between one and four FNPs since 1999. To date, the USU GSN has awarded Post-Master FNP Certificates to 15 uniformed officers. The PM option varies in length from 9 to 12 months, depending upon the student's prior education and experience; there are 31 academic credits with 562 hours of clinical experience. In August of 2002, two Post-Master students completed the PM option and four new students were enrolled. It is anticipated that this group of students (the Class of 2003) will be the last, as most of the Army's Specialty Nurse Practitioners have: become FNPs; retired from the Army; or, transitioned into a nursing administration or leadership role.

The Adult Nurse Practitioner Post-Master Certificate - The Department of Veterans Affairs/ Department of Defense Distance Learning Program.

This distance learning program has been particularly important for the San Juan VA since there are no Nurse Practitioner Programs in the local community, nor in the United States Virgin Islands.

This collaborative program between the Uniformed Services University of the Health Sciences and the Department of Veterans Affairs has been one of true excellence. It has produced a group of professionals, fully prepared through course work and clinical practice, to diagnose and manage primary care of adults. It is a living example of successful VA/DoD collaboration.

The support provided by the program faculty and staff has been extraordinary. The feedback to the participants has been timely and always helpful. The site visits were one of the program elements that helped participants and preceptors alike, to remain on course towards the goals of the program.

The graduates of this program have wisely used this opportunity to advance their careers and, ultimately, to be better prepared to provide the excellence in care that our veterans deserve...

As you prepare for your certification exams, do so with the confidence that you have been given the best preparation you could possibly have received and you have demonstrated that you have the commitment to continue achieving your goals.

- **Ms. Kathleen Collins, VA Medical Center, San Juan, Puerto Rico, Remarks at the Department of Veterans Affairs/Department of Defense Distance Learning Nurse Practitioner Program Virtual Graduation Ceremony, May 13, 2003.**

Background. The restructuring of the Department of Veterans Affairs (VA) Health Care System in the mid-1990's called for a 200 percent increase in the number of primary care providers throughout 155 VA Medical Centers. To achieve this goal, the VA determined that one effective solution would be to assist currently employed, Master Degree-prepared VA nurses to obtain new knowledge and skills as nurse practitioners. *Nearly 750 VA Master Degree-prepared clinical nurse specialists indicated interest in a post-degree, nurse practitioner certificate program if it were offered via distance education.* The USU Graduate School of Nursing (GSN) was selected by the VA to coordinate this effort. The USU GSN curriculum was unique and a national first because it was built on the excellent resources of the VA for implementing well-defined, closely-monitored, clinical practica offered concurrently with didactic content provided by the fully-accredited USU GSN.

Responsibilities of the USU GSN. Under the direction of **Founding Dean Faye Glenn Abdellah, Ed.D., Sc.D., RN, FAAN**, the USU GSN agreed to: 1) determine the length of the program; 2) establish the curriculum; 3) allocate credit for the courses; 4) assure that graduates were qualified for certification; 5) develop policies for the transfer of credit for prior courses; 6) adjust and modify institutional policies to accommodate the VA civilian registered nurse students; 7) validate appropriate faculty from the VA and the GSN to instruct in the Distance Learning Program (each had to hold at least a Master Degree, preferably in Nursing, be prepared in a nurse practitioner specialty, and be currently certified); 8) provide support staff; and, 9) procure resources for the new post-master certificate. The classes were designed to parallel the on-campus GSN courses and would be held twice a week for two hours, with a third hour conducted as a laboratory activity by the lead preceptor at the individual VA sites.

Responsibilities of the VA. **Charlotte Beason, Ed.D., RN, CNAA, Director, VA Nursing Strategic Healthcare Group of the Office of Patient Care**, was the Project Coordinator with responsibility for ensuring that the VA would: 1) utilize its national telecommunication network for the Distance Learning Program; 2) obtain the distance learning sites at the VA Medical Centers; 3) select the students and submit candidates to the GSN for evaluation of academic requirements; 4) provide educational resources for the students such as library books and computers; 5) approve the assignment of VA employees to serve as on-site preceptors who would coordinate with the GSN in the Distance Learning Program; and, 6) provide the VA portion of the funding for the Project.

Responsibilities of the VA Medical Centers with Distance Learning Sites. The VA Medical Centers with distance learning sites agreed to provide the following: 1) an educational coordinator to administer the certificate program; and, 2) a Master Degree-prepared nurse practitioner preceptor to arrange and supervise the clinical aspects of the distance learning program.

During Late 1996, the GSN and the VA Nursing Strategic Healthcare Group Entered into a Working Partnership and Agreed to Conduct a Two-Phase Project. Both the GSN and the VA agreed that Phase I would consist of one course to test the feasibility of the project. Phase I, The Pilot Project Test Class, was initiated in early 1997. Following extensive evaluation, it was found that it successfully met the didactic and clinical requirements of both the GSN and the VA. Phase II contained the remainder of the curriculum study. Phase II, the twenty-month VA/DoD Distance Learning Program, was initiated in the Fall of 1997. Phase II included 35 students located at eight VA Medical Centers from

California to New York; the certificate program was conducted in conference rooms on the USU campus, which were fully equipped for teleconferencing. The curriculum developed by the GSN emphasized: 1) comprehensive physical and psycho-social assessment; 2) decision-making processes in both acute and chronic health conditions; and, 3) health maintenance care. The distance learning program consisted of nine courses that stressed both health promotion and disease prevention. There were 29 credits of didactic content and a minimum of 560 hours of clinical experience over five semesters or 20 months.

Technology Used in the Distance Learning Program. The VA/DoD Distance Learning Program is composed of didactic course work delivered via state-of-the-art distance learning technology, including interactive video teleconferencing and the Internet. The GSN extended its network of high-speed, digital telephone lines from USU's compressed-video classroom to the VA Telecommunication Center in Martinsburg, West Virginia (the Hub), which in turn, is linked to the various distance learning sites at the VA Medical Centers. During the twenty-month Distance Learning Program, the VA was in the process of upgrading its technological capacity. As a result, most of the VA Medical Centers were equipped with video teleconferencing capabilities. Several computer and educational technologies were immediately required to ensure the success of the project. Requirements included: an upgrade of the file server at the Hub in Martinsburg, West Virginia; the establishment of a video teleconferencing unit at USU; and, the confirmation of video conferencing capability at each site. All was accomplished.

The First Advanced-Level Virtual Graduation in the VA and the DoD. Twenty-six students graduated through a virtual commencement exercise from the VA/DoD Distance Learning Program on May 18, 1999. An additional student completed requirements during August of 1999, bringing the total to 27 graduates in the first class. Outcome data from present students, alumni, and employers reflect extremely high levels of satisfaction with the distance learning program. The second virtual graduation took place on May 15, 2001, with thirty-three graduates. A third class of ten students, located at four sites in the Continental United States, Puerto Rico, and the Virgin Islands, was recognized on May 13, 2003, during a virtual graduation ceremony. **To date, 70 individuals have successfully graduated from this exceptional distance learning program and serve as Adult Nurse Practitioners for the VA Health System.** The program was halted following the third graduation because the VA had reached its target goal established for Nurse Practitioners.

Summary. The experience gained by both the GSN and the VA will allow future projects in distance learning to benefit from the lessons learned and the technologies tested during the twenty-month, VA/DoD Distance Learning Program. Outcome evaluations continue with the early graduates and their supervisors. The technology continues to evolve to reflect the rapid growth of the field. The difficulties faced by the project coordinators in creating a new distance learning program utilizing the latest technologies were numerous and challenging; the GSN and the VA Departments, faculty, staff, and students who succeeded in doing so, were well pleased with their initial results and continued to work to improve their educational efforts in distance learning. A report was also submitted to the Congress as the VA and DoD response to a legislative directive for a summary report on the VA/DoD Distance Learning Program. To ensure that other Federal entities could easily access the lessons learned during this Program, a joint report was issued by the GSN and the VA Nursing Strategic Healthcare Group in November of 2000. The report, The VA/DoD Post-Master Adult Nurse Practitioner Program: From Concept to Graduation, documents, in chronological order, the formulation of the partnership

between the DoD and the VA, the conceptual stages and developmental processes, learning strategies, course evolvement, assessment methodologies, clinical experiences, and the transmission effectiveness (computer technology and video teleconferencing) for the entire program. In short, the report provides an inclusive roadmap for implementing a distance learning program - from concept to the matriculation of the second class. **Future initiatives between the GSN and the VA are being considered with an emphasis on improving nursing practice and health care for veterans.**

The Establishment of a University Distant Education Policy. On November 6, 2001, following extensive coordination, the USU President approved a comprehensive Distant Education Policy, PPM-004-2001, for the University. The guidelines provided in the policy apply to courses and activities initially designed in the distance learning format as well as to courses and activities in which the method of delivery has changed significantly from that approved in the original curriculum proposal. These courses in distance learning may be either certificate courses or in conjunction with degree granting programs. Any department or faculty group offering distance education courses is expected to meet the recommendations of the Middle States Association of Colleges and Schools and five other accrediting groups for Distance Education Programs, dated March 23, 2001, and be guided by policies established by the University. The text of these guidelines is made available at <<http://www.wiche.edu/telecom/Article1.htm>> by the Chronicle of Higher Education. The current USU Distant Education Policy includes basic education principles, guidelines on the implementation of those principles, and identification of the responsibilities of all who are involved in distance education at the University.

IV. GRADUATE EDUCATION PROGRAMS

Graduate student contributions to research in their mentors' laboratories form an important contribution to the overall productivity of research programs. We do not have complete statistics on the papers from USU faculty in which graduate students are listed as co-authors, but some information is available. Six Graduate Program Directors responded to a request to identify peer-reviewed papers with publication dates from 1996 to 2002 by faculty in their programs in which students were identified as co-authors. *A total of 108 peer-reviewed publications were identified across the six programs, with 62 individual graduate students serving as co-authors.* Publication rates vary considerably among programs, reflecting the different search styles across biomedical research disciplines, and this is certainly an incomplete count of graduate student publications from USU. *The data support the contention that graduate students play an important role in maintaining and facilitating research productivity among USU faculty.*

The graduate programs at USU are important to the University for many reasons. They help to train a cadre of well qualified, experienced biomedical scientists and public health practitioners who will continue the tradition of scientific service to the Nation in the civilian and military worlds. Strong graduate programs are important because of the major effect active graduate programs have on the intellectual vitality of departments and programs. The presence of well-populated and thriving graduate programs is also an important factor in the recruitment of the best applicants for faculty positions at the University. USU graduate programs already serve these multiple needs.

- *VIII, Graduate Education in the Biomedical Sciences and Public Health, Subcommittee Report, Middle States Association of Colleges and Schools (MSA) Self-Study, submitted to the Evaluation Team representing the Middle States Commission on Higher Education prior to their site visit on March 30-April 2, 2003.*

ESTABLISHMENT

The Uniformed Services Health Professions Revitalization Act (Public Law 92-426) Established the University in 1972 and Directed the Establishment of Graduate Education Programs. Following Congress' establishment of the University and the School of Medicine (SOM) in 1972, the early founders understood that in order to gain and sustain accreditation, Graduate Education Programs had to be structured within the School of Medicine. The Liaison Committee on Medical Education (LCME) accreditation process is designed to certify that a medical program meets prescribed standards. It is recognized by both the LCME and the USU Board of Regents that graduate programs in the basic medical sciences leading to the Doctor of Philosophy Degree or to appropriate degrees at the Master Degree level are essential components of a School of Medicine dedicated to excellence in medical education.

The Establishment of the Office of the Associate Dean for Graduate Education. In accordance with the requirement to ensure the academic excellence of the newly established Graduate Education Programs, the Dean of the USU School of Medicine (SOM) appointed **Colonel John W. Bullard, Ph.D., USA, (Retired), as the Assistant Dean of Graduate and Continuing Education Programs.** Doctor Bullard was recognized as one of the Army's experts on educational affairs, and in particular, continuing education. He had been a Medical Service Corps officer who had served in Vietnam and had been previously assigned to the Army Academy of the Health Sciences, the Office of the Surgeon General of the Army, and the Office of the Assistant Secretary of Defense for Health Affairs. The SOM admitted its first graduate students in 1977. During the early 1980's, in an effort to highlight the contributions of the Graduate Education Programs, Doctor Bullard began a research symposium to showcase the research contributions of the graduate students. Following Doctor Bullard's death in November of 1990, the Office of the Dean, SOM, with the concurrence of the USU President and Board of Regents, and in recognition of the importance of the Graduate Education Programs, determined that the leadership position for the Graduate Education Programs should be separated from the Continuing Education Programs and a subsequent search was held for the position of Assistant Dean for Graduate Education. **Michael N. Sheridan, Ph.D., Professor, USU Department of Anatomy and Cell Biology,** was selected as the second Assistant Dean for Graduate Education in 1991. The Dean, SOM, elevated the position to Associate Dean for Graduate Education in 1993; Doctor Sheridan served in that position until August of 2001, when **Cinda J. Helke, Ph.D., Professor of Pharmacology and Neuroscience,** was selected to serve as the Associate Dean for Graduate Education; she continues to serve in the position.

Graduate Education Programs Provided at USU. The Doctoral and Masters Degree Programs available at USU are:

Interdisciplinary Ph.D. Programs in Emerging Infectious Diseases, Molecular and Cell Biology, and Neuroscience;

Departmentally-Based Ph.D. Programs in Clinical Psychology, Environmental Health Sciences, Medical Psychology, Medical Zoology, Pathology, and Applied Human Biology (Undersea Medicine);

Doctor of Public Health Program (DrPH);

Physician/Scientist (M.D./Ph.D.) Program;

Masters of Science Programs in Public Health, Molecular and Cell Biology, and Applied Human Biology (Undersea Medicine and Aviation Physiology);

Master of Comparative Medicine (MCM) Program;

Master of Public Health (MPH) Program;

Master of Tropical Medicine and Hygiene Program (MTM&H); and,

Master of Military Medical History.

Graduate Education Programs Generate Cost Avoidance for DoD during 2003 - \$1,650,000.

Since the establishment of the USU SOM Graduate Education Programs in 1977, through April of 2004, a total of 798 advanced degrees have been granted by the University: 242 Doctors of Philosophy; 15 Doctors of Public Health; 76 Masters of Science; 430 Masters of Public Health; 5 Masters of Science in Public Health; 26 Masters of Tropical Medicine and Hygiene; and, 4 Masters of Military Medical History. During 2003, 45 uniformed officers received advanced degrees (39 Masters Degrees and 6 Doctoral Degrees); at an average cost of \$30,000 per Master Degree ($39 \times \$30,000 = \$1,170,000$) and \$80,000 per Ph.D. or DrPH Degree ($6 \times \$80,000 = \$480,000$), the USU SOM Graduate Education Programs generated \$1,650,000 of cost-avoidance for the DoD during 2003. (Note: The average costs were estimated based on tuition and fees in biomedical graduate programs associated with medical schools in the National Capital Area (George Washington University, Georgetown University, University of Maryland at Baltimore, and John Hopkins University).

MISSION

“The USUHS shall:4.3. Grant applicable advanced academic degrees; establish postdoctoral and postgraduate programs, and technological institutes; conduct medical readiness training and continuing education for members of the Uniformed Services in the health professions; and prepare individuals for careers in the health professions in the Uniformed Services.”

- DoD Directive 5105.45, dated March 9, 2000, page two.

Mission Direction Calls for the Development of Graduate Education Programs. The goal of graduate study at the USU School of Medicine is to develop independent scholarship, originality, and competence in research, teaching, and professional service in the biomedical sciences and public health. This goal has guided the development of the Graduate Education Programs, which are designed for outstanding students committed to careers in the basic medical sciences, public health, or tropical medicine. The purpose of the Graduate Education Programs and their relationship to the School of Medicine were defined in the founding documents, which recognized that superior Graduate Education Programs in the basic medical sciences are an essential component in the accreditation process for a school of medicine.

Graduate Education Programs Benefit the Military Health System. Graduate Education Programs in the basic medical sciences benefit the USU and the Military Medical System (MHS) as follows: 1) the Graduate Education Programs provide training opportunities for qualified active duty personnel of the Uniformed Services who receive authorization to participate in the USU graduate training programs under the sponsorship of their parent Services; 2) graduate students have the opportunity to become aware of the outstanding investigative programs, which are on-going in the Department of Defense laboratories located throughout the Washington, D.C. area. It is anticipated that the research institutes within the Department of Defense will be assisted in their recruitment of well qualified graduates on the basis of the mutual knowledge and respect developed during the graduate students' interactions at USU; 3) the academic environment of the SOM is maintained at a high level exposing the uniformed physicians-in-training to the disciplined methods of critical scientific inquiry, which are the rational basis of problem solving in medical science; 4) graduate students participate as teaching assistants and assist in the performance of instructional and investigative efforts, which are essential to the mission of the SOM and significant to the MHS; and, 5) doctoral programs and students are essential to attract and retain outstanding research faculty at USU.

Responsiveness to the Needs of the Services.

Master of Military Medical History. A specific example of the USU Graduate Education Programs' direct response to the needs of the Surgeons General is the creation of a program for the Master of Military Medical History. This program is an outgrowth of the Fellowship in Military Medical History established at USU in 1983, to train instructors of history for the United States Army Academy of the Health Sciences. A request was received from the Medical Service Corps of the Army to establish a degree granting program so that officers could continue to be used for the preservation of lessons learned and to fill history education/teaching assignments at the Army Academy. Thus, the program was designed to meet the needs of Army officers in the Medical Service Corps Military Occupational Specialty (MOS) 70H, to prepare officers to serve as instructors in professional military medical education programs and for utilization as field historians for specific military medical issues. The program of study is currently limited to officers in the Medical Service Corps of the Army; four degrees have been granted in 1997, 1998, 2001 and 2003. The Program Director can be contacted by e-mail at <dcsmith@usuhs.mil> or at <www.usuhs.mil/meh/gradprog.html>.

The Graduate Program in Clinical Psychology Trains Clinical Psychologists to Serve in the Uniformed Services. The Graduate Program in Clinical Psychology is designed to train clinical psychologists to serve in the Uniformed Services. Students earn Master of Science (with master thesis) and Doctor of Philosophy (with doctoral dissertation) Degrees. This graduate program is designed to prepare broad-based Ph.D. clinical psychologists and to emphasize both an appreciation for, and an understanding of, the special needs of the Uniformed Services. The program trains clinical psychologists to be: effective providers of mental health services; creative problem solvers; critical thinkers sensitive to organizational needs and constraints; effective managers and communicators; and, professionals with the ability to evaluate processes and outcomes designed to improve the quality of health care. To accomplish these goals, the Ph.D. Program in Clinical Psychology follows the scientist-practitioner model of training. The program strongly values the development of knowledge and skills in applied clinical psychology and trains students to apply critical thinking skills to real world patients and situations, particularly in military and public health settings. The Ph.D. Degree requires independent scholarly work, comprehensive clinical training, a strong base in the foundations of psychology, and specialty training in uniformed clinical, health, and organizational psychology. A year-long, full-time clinical internship is also required for graduation. This program is open to individuals who currently are serving in, or who are eligible and willing to join, the Uniformed Services; and, it is accredited by the American Psychological Association (APA). A re-accreditation site-visit by the APA recently took place; a formal announcement from the APA is expected during the Summer of 2004 (also discussed under the Accreditation section, which follows). Since 1996, 14 individuals have graduated from this Ph.D. Program; and, all but one of those 14 graduates continue to serve on active duty in the Uniformed Services. There are currently 8 students on campus enrolled in Clinical Psychology, in years one through four of the program.

In 1997, a second track in this Doctoral Program was developed, the *Medical Psychology Clinical Track*; this second track has matriculated four students. The Medical Psychology Clinical Track was also evaluated during the recent re-accreditation visit by the APA with formal notification expected during the Summer of 2004. The Program Director can be contacted by e-mail at <mfeuerstein@usuhs.mil> or at <www.usuhs.mil/mps/Psychology/index.html>.

A Graduate Program Offering Specialties in Undersea Medicine and Aviation Physiology. In August of 2001, the USU Board of Regents gave its final approval for a new graduate program with two specialties in the Department of Military and Emergency Medicine (MEM). This new graduate program emphasizes multidisciplinary education and research and represents both a philosophy and a mechanism for facilitating scientific investigations that will bridge and integrate the basic and medical sciences with applied environmental physiology. Such approaches are requisite to the foundations of operational medicine and applied physiology. The overall objective of the new graduate program is to serve operational needs. The program was developed in response to requirements expressed by the Uniformed Services, particularly in the specialty areas of Undersea Medicine and Aviation Physiology. These programs are unique from other medical fields of inquiry and demand specialized training. As such, this graduate program unifies a diversity of disciplines requisite for exploring questions relevant to operational activities and applied situational outcomes. The uniformed student obtains a foundation in the basic sciences with research experience in experimental and applied physiology. The Undersea Medicine Specialty offers a Master Degree (with thesis) and a Ph.D. Degree; and, the Aviation Physiology Specialty offers a Master Degree (with thesis). The graduate program accepted its first students in August of 2002; and, there are currently two students enrolled in the program. Faculty for the program come from MEM as well as from other SOM departments; collaborative faculty include both active duty uniformed officers, some from military laboratories, and civilians who are experts in their fields. The Program Director can be contacted by e-mail at <vcassano@usuhs.mil> or at <www.usuhs.mil/mim/gradprog.html>.

The Physician Scientist Training Program (Medical Doctor/Doctor of Philosophy Program). The Medical Doctor/Doctor of Philosophy Program at USU was formally established during 2002, to train outstanding, dedicated, uniformed officers as independent physician-scientists to carry out both clinical investigations and biomedical research in the basic sciences. There are currently two students in this program who matriculated into the Neuroscience and the Emerging Infectious Diseases Programs. This program combines a rigorous basic science graduate curriculum with outstanding clinical training, and uniquely integrated Medical Doctor/Doctor of Philosophy activities that qualify students for careers in academic medicine, biomedical and clinical research, as well as clinical practice. The decision to enter this program is formidable and requires the student to dedicate seven to eight years toward completing this challenging combination of medical and scientific training. Entering students must demonstrate a high level of preparedness, outstanding academic credentials, motivation, and commitment to the goals of the program. Matriculants to the program must maintain all requirements necessary to be commissioned into the Uniformed Services throughout the Doctor of Philosophy portion of his or her training. The student will complete all required courses for the Doctor of Philosophy during the first and second years, to include some of the courses required for the first two years of the SOM curriculum. The qualifying examination for advancement to candidacy will be taken at the end of the second year and a doctoral thesis proposal must be subsequently submitted. The third year will be a research year. The transition phase begins after the third year and lasts two years. The student must complete all requirements to be commissioned in the Uniformed Services and attend Officer Basic Training; and, the student will complete the remaining requirements of the first and second years of SOM curriculum as a uniformed officer. The student will also continue to spend significant time on thesis research, finalizing the thesis project, and preparing and defending his/her doctoral dissertation. The Office of Student Affairs will share supervision of the student with the Graduate Education Office during this phase of training. The final component of the program is the clinical phase during the sixth and seventh years; the student

will begin full-time participation in the SOM curriculum under the guidance of the Office of Student Affairs and complete all required clinical rotations and clerkships. Subsequent to the completion of all requirements, the student will be awarded both the Medical Doctor and the Doctor of Philosophy Degrees and commissioned as an active duty officer (0-3) at commencement. Additional information can be accessed at <admissions@usuhs.mil> or <graduateprogram@usuhs.mil>.

The Master of Comparative Medicine - An Interdisciplinary Program. This interdisciplinary graduate program offers the Master of Comparative Medicine (MCM). The MCM Program falls within the scope of graduate programs defined as appropriate for USU and responds to a specified need of the Uniformed Services and fosters a positive collaborative relationship with USU, the National Institutes of Health, the United States Public Health Service, and the Department of Army Medicine. This program fulfills the obligation undertaken by USU in 1993 to build a graduate degree program in support of Laboratory Animal Medicine (LAM) residency training. The MCM Program is the redesignation of graduate courses approved by the Graduate Education Committee for the USU Master of Public Health Degree Program in the Department of Preventive Medicine and Biometrics. The Comparative Medicine faculty consists largely of non-billeted LAM veterinarians and other USU faculty who qualify for secondary faculty appointments in the MCM Program. The leadership of the program is provided by the Academic Administrative Committee; this committee evaluates candidates for matriculation, approves graduate programs of study, counsels students in difficulty, and recommends students for the awarding of a degree on completion of an approved program of study.

Three Interdisciplinary Biomedical Graduate Training and Research Programs Relevant to the Needs of the Uniformed Services. The research and development goal of the USU Strategic Plan is to build, sustain, and publicize interdisciplinary research programs relevant to the needs of the Uniformed Services. Currently, there are three interdisciplinary research programs:

The Interdisciplinary Program in Neuroscience. The Interdisciplinary Program in Neuroscience and its Ph.D. Graduate Program are supported by faculty members whose primary appointments are established throughout the SOM departments. It provides a seminar series and a flexible program of courses and research areas for graduate students and postdoctoral fellows who have strong training in the biological, behavioral, and/or physical sciences. Research areas strongly represented by faculty include: development, regeneration, and plasticity in the nervous system; molecular neurobiology; and, adaptive responses of the nervous system to stress, injury, and a changing environment. Integrated interdisciplinary instruction in the development, structure, function, and pathology of the nervous system and its interaction with the environment is also included. Four students entered the program in the Fall of 2003; and, three individuals (two uniformed; one civilian) received Doctoral Degrees during USU's May 2003 Commencement Ceremonies. The Program Director can be contacted by e-mail at <armstrong@usuhs.mil> or at <www.usuhs.mil/nes/home.html>;

The Interdisciplinary Program in Molecular and Cell Biology. An Interdisciplinary Program in Molecular and Cell Biology (including Genetics) has been developed to contribute to cross-disciplinary interactions and to develop the critical skills needed for data presentation and analysis; the program

also includes a seminar series and a journal club, all of which support the Ph.D. Degree Program. This interdisciplinary Ph.D. Degree Program offers training to address many of the fundamental questions of modern biology ranging from protein-nucleic acid interactions to cytokines, growth factors, and developmental biology. Prospective students should have a background in biological or chemical sciences; study for the Master Degree Program is available to uniformed officers. Research areas include: molecular biology of lymphocyte interactions; host-pathogen interactions; cell surface, cytoplasmic and nuclear receptor signaling pathways; exocrine secretory processes; and, gene targeting in mice to include a transgenic mouse facility for targeted gene disruption using homologous recombination. Five students entered the program in the Fall of 2003; and, two civilians received Doctoral Degrees during USU's May 2003 Commencement Ceremonies. The program consists of faculty mainly from six SOM departments. The Program Director can be contacted by e-mail at <jharmon@usuhs.mil> or at <www.usuhs.mil/mcb/index.html>;

The Interdisciplinary Emerging Infectious Diseases Program. This interdisciplinary Ph.D. training program is designed primarily for individuals who wish to devote their graduate training to the study of the pathogenesis, host response, and epidemiology of infectious diseases. This academic program combines formal course work with research training provided by an interdisciplinary EID faculty. The mission of the EID Graduate Program is to provide the scientific community with broadly-trained, outstanding scientists who can contribute significantly to the increasingly complex field of infectious disease mechanisms and pathogenesis. The training goals of the program include the provision of a rigorous academic environment wherein trainees learn to ask well-informed questions, develop the research laboratory skills to answer those questions, expand their capacity to think creatively and broadly, and acquire the skills necessary to communicate their ideas and results both orally and in writing. ***The importance of accomplishing these educational goals in the interdisciplinary area of infectious diseases research cannot be underestimated given the increasing threats of bioterrorism and the risks associated with emerging and re-emerging infectious diseases.*** The EID Program has three academic tracks: Microbiology/Immunology; Pathology; and, Preventive Medicine/Parasitology. The research training emphasizes modern methods in molecular biology, cell biology, and interdisciplinary approaches. Eight students entered the EID Program in the Fall of 2003 (a more detailed description of the program follows). The Program Director can be contacted by e-mail at <emetcalf@usuhs.mil> or at <www.usuhs.mil/eid>.

Additional Participants in the Interdisciplinary Programs. Additional academic departments that contribute extensively to the teaching and research training of doctoral and master degree students through interdisciplinary programs include: Anatomy, Physiology and Genetics; Biochemistry; Microbiology and Immunology; Pharmacology; and, many clinical departments such as Medicine, Neurology, Pediatrics, and Psychiatry.

The Interdisciplinary Graduate Program in Emerging Infectious Diseases.

Background. In August of 1999, the USU Board of Regents gave its final approval to the Graduate Program in Emerging Infectious Diseases (EID), an interdisciplinary Ph.D. training program designed primarily for individuals who wish to devote their graduate training to the study of the pathogenesis, host response, and epidemiology of infectious diseases. Development of expertise in infectious diseases is timely and of global importance given that the National Institutes of Health have estimated that at least 22 pathogens have been newly recognized or have re-emerged in the past two decades. With the addition of the EID Program, the SOM has increased its capacity and commitment to instruct students in the biology of infectious diseases, especially in areas of interest to uniformed medicine.

Both Uniformed and Civilian Students Are Matriculants in the EID Program. The EID Program is designed for both uniformed and civilian applicants who wish to pursue a program of study leading to the Ph.D. Degree in one of three academic tracks: Microbiology/Immunology; Pathology; or, Preventive Medicine/Parasitology. In addition, this program provides an opportunity for uniformed pediatric and adult Infectious Diseases Fellows to complete the research components of their Fellowships in Infectious Diseases. The inaugural graduate student class of 7 full-time students matriculated in the Fall of 2000. Since then, 24 uniformed and civilian students have entered the Program. Approximately 23 percent of the current students are military officers in the Medical Corps. Two classes have completed Qualifying Exams and the entering Class of 2002 will take Qualifying Exams in June of 2004. Selection of the incoming EID class for the Fall of 2004 is underway. The number of applicants for the EID Program continued to increase during the past year; and, the program continues to have more outstanding applicants than it has stipends.

The University offers a unique opportunity for students interested in graduate training in the field of emerging and re-emerging infectious diseases because of the synergistic educational opportunities offered by a blend of clinical and basic science faculty, as well as the combination of civilian and uniformed faculty. In addition to the University-based thesis advisors for the EID students, a source of thesis advisors also includes faculty researchers from some of the preeminent infectious diseases research Institutes in the country: the Walter Reed Army Institute of Research (WRAIR); the Naval Medical Research Center (NMRC); the United States Army Medical Research Institute of Infectious Diseases (USAMRIID); and, the Armed Forces Institute of Pathology (AFIP). Joint training opportunities with faculty members at these Institutes who have USU faculty appointments will permit the EID Program to fulfill its training goals.

Realization of the Extent to which Basic Science Advances in the Area of Infectious Diseases Can Affect the Current and Future Health of Individuals throughout the Military Health System. The Emerging Infectious Diseases Program also serves as an opportunity for the facilitation of educational and scientific interactions between students and faculty at USU who share common interests in the contemporary approaches to the study of molecular biology, pathogenesis, and host responses within the context of emerging and re-emerging infectious diseases. The establishment of this program at USU by the SOM formally recognizes the breadth of disciplines spanned by emerging infectious diseases and the extent to which advances in these areas can affect the current and future health of individuals

within the United States and also in the global arena. This situation is particularly critical and important given the recent events of bioterrorism. ***As part of the EID Program, courses on the agents and effects of bioterrorism are offered. To date, this program is one of the only graduate programs in the country to offer formal training in this critical area.*** The implementation of an interdisciplinary and interdepartmental Program in Emerging Infectious Diseases will also broaden and enhance the overall educational objectives of USU and bring together faculty and students in a scientific community designed to stimulate and promote collaborative interactions. ***Since USU has the only school of medicine that offers a formal program in EID, the University plans to be at the forefront of training broadly-based uniformed and civilian infectious diseases scientists for the future.*** As indicated above, the Program Director can be contacted by e-mail at <emetcalf@usuhs.mil> or at <www.usuhs.mil/eid>.

The Graduate Education Programs in Preventive Medicine and Public Health Address the Special Needs of the Military Health System.

USU's Public Health Program, with its emphasis on community health, ranks sixth in the Nation according to U.S. News & World Report's 2004 rankings of "America's Best Graduate Schools... USU's program ranked just below Tufts University, the Medical College of Wisconsin, Northwestern University, Oregon State University and the University of Rochester on the list of the top 10 community health master or doctorate programs."

- USU Medicine, U.S. News & World Report Ranks USU Graduate Program in Top Six, Fall 2003, page 5.

The Department of Preventive Medicine and Biometrics (PMB) offers graduate education programs leading to the Degree of Master of Public Health (MPH), Master of Tropical Medicine and Hygiene (MTM&H), Master of Science in Public Health (MSPH), Doctor of Public Health (DrPH), and Doctor of Philosophy (Ph.D.) in Medical Zoology and Environmental Health Sciences. The reputation for excellence of the USU Preventive Medicine Graduate Education Program was recently evidenced by U.S. News and World Report's 2003 *Rankings of Graduate Programs in Public and Community Health*; the USU program was placed among the six best in the Nation. Between 1983 and April of 2004, 487 individuals have graduated from these degree programs and earned the following degrees: MPH - 430; MSPH - 5; MTM&H - 26; MS - 1; DrPH - 15; and, Ph.D. - 10. During 2003, 44 Preventive Medicine and Biometrics students were awarded advanced degrees: 2 Doctors of Philosophy; 3 Doctors of Public Health; 38 Masters of Public Health; and, 1 Master of Science in Public Health. The PMB Graduate Programs have undergone considerable growth over the past years and have approximately 50 students currently enrolled in the Master and Doctoral Programs. With its stated mission "to produce knowledgeable and highly skilled public health professionals in support of the health and global mission of the Uniformed Services," the PMB Department has sought to be responsive to the needs of its customers; and, this is reflected in the types of programs and training offered. During 2003, PMB continued its collaborative educational agreements with the Walter Reed Army Medical Center Preventive Medicine Residency Program and Internal Medicine Fellowship Program, the Army Program for Training in Health Services Administration, the United States Army and United States Public Health Service Laboratory Animal

Medicine Program, the Navy Dental Research Institute Program in Dental Public Health, and the Indian Health Service Environmental Health Training Program. In addition, the PMB Department is affiliated with the United States Army and Navy Biomedical Research Laboratories located in: Bangkok, Thailand; Rio de Janeiro, Brazil; Nairobi, Kenya; Cairo, Egypt; Jakarta, Indonesia; and, Lima, Peru. The MTM&H Program includes a six-week overseas clinical experience in tropical medicine; the students find excellent opportunities at these overseas laboratories. A research program also exists under an agreement with the Ministry of Health in Belize. Several doctoral students have found opportunities to do research in these various locations.

Demographics of the Graduate Program in Public Health. The current Graduate Program in Public Health, as of March 2004, has 50 students at the Master Degree level (MPH, MTM&H, and MSPH); these programs are designed for students with at least three years of experience in a health-related field. Forty-eight of these students are in the Uniformed Services and two are civilians. These students include: 21 - Physicians; 2 - Veterinarians; 5 - Air Force International Health Specialists; 4 - Environmental Health Officers; 3 - Air Force Bioenvironmental Engineers; 6 - Health Physics Track; 2 - Air Force Public Health Officers; 2 - Indian Health Service Environmental Health Training Program; 2 Aerospace Physiologists; 1 - Attorney (civilian); 1 - Pre-Veterinarian (civilian); and, 1 Clinical Psychologist. First-year residents in General Preventive Medicine/Public Health and Occupational and Environmental Medicine take courses and meet all of the requirements for the MPH or MTM&H Degrees as part of their residency training.

At the doctoral level, 4 individuals (1 uniformed officer; 3 civilians) are Doctor of Public Health students and five individuals (4 uniformed officers; 1 civilian) are Doctor of Philosophy candidates. The Doctorate in Public Health Program prepares individuals for leadership roles in research, teaching, or policy development in the field of public health. Two additional Ph.D. Programs are: 1) Medical Zoology, for students with a Master Degree in Entomology or Parasitology who wish to pursue further study in field-oriented medical parasitology or vector biology; and, 2) Environmental Health Sciences, which includes environmental health science research particularly in the area of military-relevant exposure assessment. The Program Director can be contacted by e-mail at <ggackstetter@usuhs.mil> or at <www.usuhs.mil/pmb/pmb.html>.

The outstanding response of the Department of Preventive Medicine and Biometrics to the requirements of the Uniformed Services is documented by the following selected examples:

The Occupational Ergonomics Program. Recognizing the importance of occupational musculoskeletal injuries among military personnel and in response to the Army's request for specialty training in occupational ergonomics within the MPH Program, a new area of concentration was established, the Occupational Ergonomics Concentration in the Department of Preventive Medicine and Biometrics Master of Public Health Program. The first student entered this program in July of 2002, and graduated in June of 2003. *The Occupational Ergonomics Program is the only established graduate-level injury prevention program in the Department of Defense;*

The International Health Specialist (IHS) Program was initiated in 1999 under the guidance of **Lieutenant General Paul K. Carlton, Jr., Surgeon General of the Air Force**. Numerous After Action Reports (AARs) indicated that Humanitarian Assistance (HA) and Disaster Response (DR) missions would benefit if members of the Air Force Medical System (AFMS) received additional training. The goal of the IHS Program is to prepare regionally-focused military medical experts who can help prepare uniformed forces for operational contingencies and the global response to medical crises during war and/or peacetime deployment. The AFMS members may be selected for full-time IHS assignments in support of Combatant Commander's Theater Engagement Plans. Individuals selected for the positions will be prepared with short courses and rotations as well as degree programs, i.e., the Master of Public Health (MPH) Degree with a regional, humanitarian assistance, disaster response, or international health focus. A memorandum of understanding was signed between the Office of the Air Force Surgeon General and USU during November of 2001, to design, test, and implement an educational and academic curriculum for the IHS Program.

The USU/SOM MPH Program is a 12-month program consisting of 60 quarter credit hours; in addition to the MPH requirements, the IHS students are required to take: International Health I; International Health II; Medical Anthropology; Joint Medical Operations and Humanitarian Assistance; Public Health Issues in Disasters; Historical Perspectives of International Health; and, Introduction to Epidemiology II. Furthermore, IHS students must also select three additional electives from the following courses: Program Planning & Development; Principles and Practice of Tropical Medicine; Malaria Epidemiology and Control; Travel Medicine Practicum; Biostatistics II; and, Deployment Environmental Exposures. IHS graduates are expected to use their acquired quantitative and analytical skills in biostatistics and epidemiology to identify and measure community health needs and to investigate the impact of biological, environmental, and/or behavioral factors in solving public health problems. Each graduate will understand the components, operations, and financing of health delivery services and have the administrative skills to plan, analyze, manage, and improve public health programs for the Uniformed Services. The graduate will also understand the role that the United States military and other organizations and agencies play in addressing global health issues. And, the graduate will be able to apply public health principles toward assessing international health needs and in the planning, conducting, and evaluating of international health-related activities and projects. Four students matriculated into the program during 2002; and, all four graduated in June of 2003; currently, there are four additional IHS students who are projected to graduate in June of 2005;

The Ph.D. Program in Environmental Health Science was recently established in response to identified needs within the Uniformed Services. The first Ph.D. in Environmental Health Science was granted in May of 2003. Three active duty Naval officers, are currently enrolled in the Ph.D. program;

The Master of Science in Public Health (MSPH) Program has graduated five degree candidates between 2000 and April of 2004; during 2003, one officer graduated from the Health Physics specialty of the MSPH. Thirteen Navy, Air Force, Army, and Public Health Service officers are currently enrolled in the Environmental and Occupational Health and the Health Physics specialties in the MSPH Program; four of these students are expected to graduate during 2004. Students in both the Ph.D. and MSPH Programs design and conduct research with military relevance. Past and current projects have included the development of chemical warfare detection methods and instrumentation. The students and program

faculty work closely with the Services and other Federal and international organizations to identify and address current needs for operational forces and emergency responders;

The Aviation Physiology Specialty Track in the Master in Public Health Program has been offered for the past four years. The track consists of 5 courses: Aviation Operational Physiology I and II; Aviation Human Factors; Aviation Physiology; and, Special Topics in Aviation Physiology. This course of study prepares students for a career in the military as an Aviation Physiologist. Since 1999, 7 students have completed the program and three students have audited the course. Both of the students, who participated in the program during the 2000-2003 term, were accepted into the United States Navy's Aerospace Physiology Program. Each year, the program has expanded; this year's emphasis incorporated additional mishap investigation techniques; plans are to continue in this area throughout 2004, to include establishing a modeling segment. And, plans are also in place to develop a course in Hyperbaric Medicine during 2004;

The TriService Advanced Military Tropical Medicine Course has been offered at USU, beginning in 1996, through the Summer of 2003. During 2003, 71 military medical officer students were trained in operational military medicine, consisting of four weeks of lectures and laboratories in the advanced diagnosis and treatment of tropical diseases. Approximately 70 lecturers provided over 106.5 hours of didactic instruction. To date, over 425 students have completed the course. One hundred and thirteen continuing medical education hours (CME) were awarded during the past year; the overseas field missions were attended by 38 medical officers (El Salvador - 17; Bolivia - 8; Peru - 8; Cairo - 3; and, Thailand - 2);

The Tropical Medicine and Travelers' Health Course is offered as a 12-week course during the Spring Quarter of the MPH Program. It includes lecture, seminar, laboratory and case-based curriculum approved by the American Society of Tropical Medicine and Hygiene and leads to eligibility for the qualifying examination in Tropical Medicine and Travelers' Health. To date, 31 uniformed medical officers and 11 civilian physicians have completed the course;

The Diagnostic Parasitology Course is offered as a series of lectures and hands-on laboratory sessions for individuals wishing to study parasitic infections in humans. Uniformed and civilian medical technologists and physicians from all parts of the world have completed this course. Participants for the course have included: United States Embassy personnel from Asian and African countries sent by the United States Department of State; members of the Peace Corps; a medical doctor from the Japan Ground Self Defense Force; and, civilians from various foreign and domestic health related organizations. Since 1988, over 290 individuals have taken the course, to include 10 individuals who took the course during 2003;

Critical Decision Making for Medical Executives: Keys to Improving Population Health, a five-day training course held four times each year, responds to the Congressional mandate that current and prospective DoD health care leaders receive training in health care management and administration.

The focus of the course is to equip health care professionals with the knowledge and tools needed to integrate clinical and business decisions to improve health care delivery and population health. To date, 28 sessions have been held in the TRICARE Regions and approximately 820 senior officers have been trained for the MHS.

(See Section II of this document, *The USU SOM Department of Preventive Medicine and Biometrics and the Centers for Preventive Medicine and Public Health*, for further discussion.)

ACADEMIC REQUIREMENTS AND ACCREDITATION

Academic Excellence and Uniformity Ensure Accreditation. To ensure academic excellence within the Graduate Education Programs, in addition to the oversight and reviews provided by the Graduate Education Committee and the academic departments, a series of requirements for the Doctor of Philosophy Degree (Ph.D.) have been established. Some departments have established additional requirements. The minimum residency requirement for the Ph.D. is 36 months of full-time study; but, it may be less if a student holds an advanced degree. All requirements must be completed no later than seven years after matriculation. Formal course work, participation as teaching assistants in the SOM teaching programs, and directed research activities are all components of a student's predoctoral program. Full-time status is defined as 12 or more credit hours each quarter. The minimum course work requirement for the doctorate is 48 graded credit hours and the minimum for total academic credit is 144 credit hours. A qualifying examination (comprehensive examination) is conducted and graded by a committee of graduate faculty. A written dissertation based on the original experimental research, or an alternative thesis format, differentiated by the materials and methods section and results section, in the form of acceptable peer-reviewed publications is required. A total of 24 credit hours of graduate course work taken within the last 5 years at other academic institutions, either before admission to the SOM or during study at USU, may be transferred, provided such courses are equivalent to courses at the SOM and are approved by the graduate faculty of the specific program and the Graduate Education Committee. Some departments' Ph.D. Programs of Study encompass an independent project whereby the student will receive a Master Degree while pursuing the Ph.D. Requirements are designed to ensure academic excellence and uniformity in degree programs across the departments. An approved thesis is required of all candidates for the Master of Science Degree. A thesis is not required for the Master of Public Health or the Master of Tropical Medicine and Hygiene; but, an independent project paper must be completed to fulfill requirements for these degrees.

The Graduate Education Committee and Program Reviews Ensure the Quality of the Programs. Each Graduate Education Program is managed by a Program Director. The Graduate Education Committee (GEC) is composed of the Graduate Program Directors, representatives from the Basic Science Departments, the Associate Dean for Graduate Education, the Vice President for Teaching and Research Support, two members of the faculty appointed by the Dean, SOM, and a Graduate Student Representative. The GEC is responsible for periodic reviews of the policies and procedures of each Graduate Education Program, reviews of academic records and other aspects of graduate student standing, and the monitoring of the overall quality of graduate student life at the University. In addition, all graduate courses must be submitted to the GEC for consideration and approval prior to offering (*over 350 individual graduate education courses have been established by the participating faculty*). Significant changes to previously approved courses must also be considered by the GEC prior to incorporation. Departmental faculty annually review and update the graduate course offerings for each program. Some departments rely upon SOM course offerings for their Graduate Education Program curricula, supplemented by graduate course offerings. Some SOM courses have been subdivided into individual graduate offerings, allowing graduate students to take appropriate parts of a larger course. The GEC makes recommendations on its areas of responsibility to the Dean, SOM, through the Associate Dean for

Graduate Education. Following the 1999 SOM Self Study, no major revisions were recommended for the Graduate Education Programs. The recent Self-Study for the Middle States Commission on Higher Education points out that “the USU graduate programs have continued to mature and develop with new interdisciplinary programs (e.g., Emerging Infectious Diseases) and programs targeted toward military needs (Undersea Medicine, Aviation Physiology) being initiated in the past five years. These programs take advantage of unique faculty expertise and other resources and opportunities unique to a Federal health sciences university. In addition, the Office of Graduate Education implements a regular formal process of external review of its graduate programs to assure that high quality programs are fostered and maintained” (*VIII, Graduate Education in the Biomedical Sciences and Public Health*, Subcommittee Report, Middle States Commission on Higher Education Self Study, submitted for the March 30 - April 2, 2003 site visit, page 8).

Within the last several years, each of the established Graduate Degree Granting Programs, subsequent to the preparation of a detailed self-study, was site-visited and reviewed by an external team of graduate educators. During the initial review cycle, the Neuroscience Program, Programs in the Medical and Clinical Psychology Department, the Anatomy, Physiology and Genetics Department, and the Pharmacology Department were evaluated. In 2001, the Molecular and Cell Biology Program and the Programs of the Pathology Department and the Department of Microbiology and Immunology were externally reviewed. Constructive improvements to the Graduate Education Programs have resulted from these external reviews. Newer programs, including the Emerging Infectious Disease Program, the Specialties in Undersea Medicine and Aviation Physiology, and the Master of Comparative Medicine Program will be externally reviewed within the next few years. This external review process is intended to bring attention to the strengths and weaknesses of the programs and to appropriately focus institutional resources for graduate education.

Accreditation of USU Graduate Education Programs. Accreditation of the USU Graduate Education Programs is granted by four entities: the Middle States Commission on Higher Education; the Council on Education for Public Health; the American Board of Electronic Technology; and, the American Psychological Association.

The Middle States Commission on Higher Education. The Graduate Education Programs, as an integral part of the SOM and the SOM Office of Graduate Education, are reviewed by the Middle States Commission on Higher Education; the Graduate Education Programs are also included in the recent ten-year accreditation granted by the Middle States Commission on Higher Education through 2013.

The Council on Education for Public Health. Given the mission of USU and the importance of prevention to uniformed medicine, the USU SOM Department of Preventive Medicine and Biometrics (PMB) is a large and vital part of the medical school and the University. In addition to accreditation by the Middle States Commission on Higher Education as a Department within the SOM, the PMB graduate programs are nationally accredited by the Council on Education for Public Health (CEPH). CEPH is the recognized accrediting body for graduate schools of public health and graduate programs in community

health education and community health/preventive medicine. The PMB Graduate Programs in Public Health were initially accredited by CEPH in 1985 and were last reviewed in 1998. The CEPH report, following the June 1998 site visit by a team of external evaluators, noted that “the values of the institution and the philosophy of military medicine are an exceptionally *good fit* with the values and philosophy which underlie public health and preventive medicine. The program has strong ties to the military community, both locally and worldwide, and the instructional programs have particular relevance to the needs of the Uniformed Services to which program graduates will return after their training. The curriculum is quantitatively-oriented and rigorous.” The PMB Graduate Programs in Public Health are fully accredited through 2005.

Following the CEPH accreditation process in 1998, an *ad hoc* committee was established to articulate the mission, goals, and objectives of the Preventive Medicine and Biometrics Graduate Programs. The PMB Department has continued to use this document as part of a dynamic process of program review and evaluation for continuous quality improvement, including efforts to identify measurable program outcomes. In addition to the rigorous, quantitatively focused curriculum (60 credit hours), students are required to complete a 108 hour practicum experience, as well as an independent project. Greater emphasis has been placed on basic research methodology, and students are encouraged to present their research results at scientific meetings and to submit manuscripts to peer-reviewed journals for publication. The Program Director can be contacted by e-mail at <ggackstetter@usuhs.mil> or at <www.usuhs.mil/pmb/pmb.html>.

Accreditation Board for Engineering and Technology Accreditation for the Division of Environmental and Occupational Health. The USU SOM Department of Preventive Medicine and Biometrics (PMB) submitted an application for accreditation from the Accreditation Board for Engineering and Technology (ABET) in support of PMB’s Environmental and Occupational Health Division in October of 2003; the review process by ABET proved to be a positive one. The University expects to receive a formal response from ABET in June or July of 2004.

Clinical Psychology Program Receives Accreditation. The Department of Medical and Clinical Psychology’s Clinical Psychology Ph.D. Program has enjoyed on-going accreditation from the American Psychology Association’s Committee on Accreditation. The program received its initial accreditation in record time and has since been listed annually among accredited programs of professional psychology in the American Psychologist. The initial site visit report stressed that “the curriculum is clearly articulated and appropriately sequenced, and the practicums are organized. Well-qualified and accessible, the faculty provides excellent role models for students. Also commendable is the program’s commitment to systematic self-evaluation.” The Clinical Psychology Ph.D Program recently had its second review by site visitors on behalf of the APA; the re-accreditation process was a positive one; formal notice on re-accreditation by the APA is expected in the Summer of 2004. Doctoral programs and research in this area emphasize the application of psychology to behavioral medicine and to clinical psychology. Study in applied areas on the interface of health, psychology, and behavior, and in the basic areas of psychology is offered. This American Psychological Association-accredited Clinical Psychology Ph.D. Program is offered to selected members of the Uniformed Services. A second track in this Doctoral Program was developed in 1997, the Medical Psychology Clinical Track; the new track was also evaluated during the recent re-accreditation visit by the APA with formal notification expected during the Summer of 2004.

The Program Director can be contacted by e-mail at <mfuerstein@usuhs.mil> or at <www.usuhs.mil/mps/Psychology/index.html>.

ACADEMIC RESOURCE FOR THE UNIFORMED SERVICES

The Development of Independent Scholarship. The goal of graduate study in the biomedical sciences and public health at USU is to develop independent scholarship, originality, and competence in research, in teaching, and in professional service to the Nation. The Graduate Education Programs are designed for outstanding students with a strong commitment toward permanent careers in the basic medical sciences and, potentially, in the Federal Government. Within each Ph.D. Program, an individualized course of study is designed for each student to meet his or her specific needs (*over 350 individual graduate education courses have been established by the participating faculty at USU*). The graduate programs are open to qualified civilian and uniformed personnel. Students accepted for graduate study are generally enrolled on a full-time basis. They assist in the performance of the instructional and investigative efforts that are carried out at the University. Active duty military and uniformed services personnel must obtain the approval and sponsorship of their parent Service; they also incur an obligation for additional service, in accordance with the regulations of their parent Services that govern sponsored graduate education. Most of these officers will complete careers in their parent Services and use their graduate education and training to fulfill specific assignments for their Surgeons General and the Military Health System.

The Faculty of the Graduate Education Programs Ensure an Individualized Program Built on Quality Research and Instruction. All Graduate Programs have sufficient full-time faculty to accommodate the present advising needs for the students in the Graduate Education Programs. Most Graduate Programs reported in recent SOM Self-Studies that additional students are desired and could be accommodated without placing undue demand on existing faculty resources. All Graduate Programs have a faculty/student ratio that provides excellent opportunities for continuous interaction; and, large numbers of both basic science and clinical science faculty members are involved in the didactic and research training of USU graduate students. The November 15, 2003 USU Faculty Listing reported 196 civilian and 115 uniformed faculty members in the USU SOM; and, over 150 of those 311 SOM faculty members were actively supporting the Graduate Education Programs, which currently include approximately 166 graduate education students. Formal occasions for faculty and graduate student interactions occur through seminars, journal clubs, research laboratory rotations, and courses; opportunities abound for students to interact with faculty on an informal and regular basis.

A faculty actively involved in research is critical to the success of the Graduate Education Programs. Through their research activities, high quality faculty members maintain themselves at the cutting edge of their various disciplines. Thus, they contribute to the research mission of the SOM by making advances in medically related research; and, they are also better equipped to function as “state-of-the-art” educators. The productivity of the USU SOM research faculty, the quality of their research, and their ability to successfully compete for extramural and intramural funding are all indications of the success of the USU research mission. The presence of strong Graduate Education Programs contributes to this success and is essential not only for the continued growth of the research activities at the University, but also for the future of medical research and education. The SOM Graduate Education Programs are clearly recognized by the institution as essential to achieving success in the University’s research mission.

Departments with active and vigorous graduate programs show high research productivity. USU graduate education students regularly present their research at professional meetings and publish their findings in peer-reviewed scientific journals, thus publicizing and promoting the University's reputation. The University's reputation is also enhanced by the success of its graduates to secure postdoctoral positions in highly regarded public and private research laboratories, followed by faculty appointments or positions of responsibility in government research, regulatory agencies, and private industry.

2003 School of Medicine Biomedical Graduate Educator Award. As part of the 2003 USU Graduation Ceremonies, **Juanita Anders, Ph.D., Department of Anatomy, Physiology, and Genetics**, received the Biomedical Graduate Educator Award. This award recognizes the outstanding contributions of a member of the USU biomedical graduate faculty in the School of Medicine (SOM). Doctor Juanita Anders has demonstrated commitment to graduate education through her many extensive and outstanding contributions to the education of students in the SOM graduate doctoral training programs. Doctor Anders is recognized for her excellence in teaching. Her skilled, personable, and interactive teaching style has positively affected each of the USU students who have had the opportunity to interact with her. Her excellence in mentoring graduate students is clearly shown by the numerous achievements and successes of her doctoral dissertation students.

Research Facilities Are Well Equipped and Support the Graduate Education Programs. The Graduate Education Programs are conducted in facilities on the campus of USU. Well-equipped, state-of-the-art laboratories are available to support the wide variety of research projects directed by the faculty in the basic medical sciences. Individual laboratories and core facilities are well-equipped with the instrumentation required for modern biomedical research. Special resources include the following: high resolution transmission and scanning electron microscopes; video-based computer graphics and confocal microscopy; a central resource facility providing custom synthesis of oligonucleotides and peptides; biohazard containment laboratories; a centralized animal resources facility; a medical library; computer support to include orientation to web sites and the Internet; and, a learning resources center. Students can enhance their educational experiences at USU through collaboration with the National Institutes of Health, the Library of Medicine, the Naval Medical Research Command, the Walter Reed Army Institute of Research, the Armed Forces Institute of Pathology, the Armed Forces Radiobiology Research Institute, the National Institute of Standards and Technology, numerous biotechnology companies, and other major institutions in the area.

The 2003 Graduate Student Research Colloquium. The Graduate Student Research Colloquium was begun in 1980 to promote scholarly interchange between graduate students and the academic community at USU and to recognize the research achievements of USU graduate students. The 23rd Annual Graduate Research Colloquium, sponsored by the graduate faculty and students, featured six oral presentations and 15 poster presentations of original research conducted by 21 graduate students. *The John W. Bullard Colloquium Lecture* followed the student presentations.

The 2003 Bullard Colloquium Lecture was presented by **John D. Gearhart, Ph.D., C. Michael Armstrong Professor at Johns Hopkins, Medicine Professor, Department of Gynecology and Obstetrics, Johns Hopkins University School of Medicine**, on *Human Embryonic Germ Cells: Differentiation and Transplantation*. Doctor Gearhart, whose research over the past two decades has been directed at understanding the molecular and cellular basis of human embryonic development, is recognized as a leader in the development and use of human reproductive technologies and in the genetic engineering of cells. He is a major spokesperson for the study and use of human stem cells derived from early embryonic tissues. His current research is focused on the basic science of stem cells, cell differentiation, and the generation of cell-based therapies for a number of diseases and injuries, including juvenile diabetes, metabolic diseases of the liver, motor neuron loss, Parkinson's disease, spinal cord injury, stroke, heart disease, and cerebral palsy.

STUDENT AFFAIRS

The White House announced that 30 outstanding men and women from across the country have been selected as National Finalists for the 2003-2004 White House Fellows Program - the Nation's most prestigious program for leadership and public service. Among those selected is current USU Department of Preventive Medicine & Biometrics Doctor of Public Health student, Lisa May!

The National Finalists represent a diverse cross-section of professions, including academia, the arts, architecture, business, city government, consulting, education, finance, health care, law, non-profit, and technology. Additionally, four branches of the military are represented among the National Finalists.

During June 2003, the National Finalists will participate in a two and one half day interview process before the President's Commission on White House Fellowships. Based on those interviews, the Commission will then recommend between 11 and 19 outstanding candidates to President George W. Bush for one-year appointments as White House Fellows.

Selection as a White House Fellow is highly competitive and based on a record of remarkable professional achievement early in one's career, evidence of leadership potential, a proven commitment to public service, and the knowledge and skills necessary to contribute successfully at the highest levels of the Federal government. In its 30-year history, the program has fostered leaders in many fields including Secretary of State Colin Powell, Secretary of Labor Elaine Chao, American Red Cross President Marty Evans, United Nations Foundation President and Former U.S. Senator Timothy Wirth, and U.S. Senator Samuel Brownback.

- **Ms. Sharon Willis**, USU Office of Alumni Affairs,
University-Wide Communications Announcement, May
2, 2003.

Selection of Students. A formal application is required of all persons seeking admission to graduate study at USU. Applications and all supporting documentation must be received no later than January 15th for programs beginning in the following August; there is no application fee. Applicants must have completed a Baccalaureate Degree Program from an accredited academic institution and have taken the Graduate Record Examination (GRE) before matriculation at USU. The GRE may be waived if the applicant possesses an advanced academic degree. All graduate students are admitted to a program of graduate study on a full-time, or part-time, basis and assist in the teaching and research programs that are integral components of the Graduate Education Programs in which they are enrolled.

Demographics and Qualifications of the Student Body. Seventy-two students matriculated into the Graduate Programs of the SOM during August of 2003. Of those, 31 were admitted to Ph.D. Degree Programs and 41 were admitted to Masters Degree Programs. Of the Ph.D. matriculants, the greatest number enrolled in the interdisciplinary programs: Emerging Infectious Disease Program - 8 students; the Neuroscience Program - 5 students; and, the Molecular and Cell Biology Program - 5 students. Departmentally-based programs in Medical and Clinical Psychology enrolled 6 students; Preventive Medicine and Biometrics enrolled 3 students; Pathology enrolled 3 students; and, Military and Emergency Medicine enrolled 1 student. The 41 matriculating students in Masters Degree Programs enrolled in the graduate programs of the Department of Preventive Medicine and Biometrics.

The 166 students currently enrolled in the Doctoral and Masters Degree Programs at USU come from all parts of the country, from all types of undergraduate academic institutions, and from many different career-paths. Of these individuals, 115 are Ph.D. or DrPH students, while 51 are Master Degree candidates. Approximately 45 percent of the graduate students attend USU as active duty members of the Uniformed Services, to include the United States Army, Navy, Air Force, and Public Health Service. Most students are enrolled on a full-time status; however, a few exceptional students are accepted into degree-granting programs as part-time students. The MPH Program is generally completed in one year (as a full-time student); the Masters of Science Degree Programs take approximately two years to complete; and, the Doctoral Programs take from three to seven years to complete (four to five years is the average time for a Ph.D).

Active-duty uniformed personnel accepted to study full-time must have the consent and sponsorship of their parent Services and incur a service obligation to the United States Government after the completion of their graduate training programs. The University offers USU-supported stipends on a competitive basis to civilian doctoral students who are United States Citizens or resident aliens. Forty-nine of the civilian Ph.D. students receive USU-supported stipends; other civilian doctoral students receive stipend support from other sources.

Applicants must have completed a Bachelor Degree from an accredited academic institution prior to enrollment; they must arrange for: official transcripts of all prior college-level courses; GRE scores taken within the last two years; and, letters of recommendation from three individuals who are familiar with their academic work. Information and application forms can be downloaded from <<http://www.usuhs.mil/geo/gradpgm/index.html>>.

24th Commencement - May 17, 2003. Approximately 2,000 family members and guests attended the 24th Commencement Ceremony at the USU campus on May 17, 2003. During the graduation ceremony, the following School of Medicine Graduate Education Programs were recognized in the commencement program: 15 Doctor of Philosophy Degrees; 3 Doctor of Public Health Degrees; 4 Masters of Science Degrees; 1 Master of Military Medical History Degree; 1 Master of Tropical Medicine and Hygiene Degree; and, 38 Masters of Public Health Degrees.

The USU Graduate Education Programs Have Granted a Total of 798 Degrees. Since the establishment of the USU SOM Graduate Education Programs in 1977, through April of 2004, the Graduate Education Programs have granted a total of 798 Doctoral and Master Degrees in the Biomedical Sciences and Public Health: 242 - Doctor of Philosophy; 15 - Doctor of Public Health; 76 - Masters of Science; 430 - Masters of Public Health; 5 - Masters of Science in Public Health; 26 - Masters of Tropical Medicine and Hygiene; and, 4 Masters of Military Medical History. During 2003, 45 uniformed officers received advanced degrees (39 Masters Degrees and 6 Doctoral Degrees).

The 2003 Graduate Student Award. The Graduate Student Award was presented to **Kimberly Byrnes, Ph.D.** This award was presented during the 2003 USU Graduation Ceremonies to recognize this graduating student for her outstanding and exceptional service rendered to the student body, medical school, and the University. During the graduation ceremonies, Ms. Byrnes received a Doctor of Philosophy Degree for her work in the Neuroscience Graduate Program. This award recognizes Doctor Byrnes' academic achievements, participation in the academic and intellectual life of the community, and contributions to the welfare and morale of other graduate and medical students.

The Henry M. Jackson Foundation Fellowship in Medical Sciences Awards. The Henry M. Jackson Foundation inaugurated a Foundation Fellowship to provide stipend and travel support for two outstanding civilian graduate students during the terminal year of their programs of doctoral study at the Uniformed Services University. The recipients of the HMJ Fellowship, acknowledged at the 2003 Commencement, were **Kimberly Byrnes, Neuroscience Graduate Program**, and **Kimberly Kalupa, Department of Medical and Clinical Psychology Graduate Program.**

ALUMNI AFFAIRS

Overview of the Preparation of Graduate Students for Appropriate Career Opportunities.

(The following is taken from the *VIII, Graduate Education in the Biomedical Sciences and Public Health*, Subcommittee Report, Middle States Commission on Higher Education Self Study, submitted in preparation for the 2003 site visit, pages 3 - 5.)

Graduates of USU Ph.D. Programs, as with Biomedical Ph.D. Programs everywhere, usually enter post-doctoral programs immediately after graduation, and many take a second post-doctoral position before finding a career level position. Program Directors and the major advisors of most USU graduates are generally aware of the first appointment obtained by graduates, but have much less complete information about the graduates' activities subsequent to their first postdoctoral appointment. Informal discussion with Program Directors suggests that USU graduates appear to have no difficulty in obtaining good post-doctoral appointments. Many of the post-doctoral appointments taken up by USU graduates are obtained in response to letters to USU faculty mentors from schools seeking USU graduates for position vacancies. These letters reflect the high standing in their professional field that many USU faculty mentors hold; they also indicate that USU SOM Graduate Education Programs are regarded as a source of productive post-doctoral fellows.

Following post-doctoral appointments, USU Program Directors are aware that graduates of USU Doctoral Programs enter a wide range of positions. The University's location in Bethesda, Maryland, leads to appointments in government research laboratories. Thus, of 25 Ph.D. graduates of the Microbiology and Immunology Program whose positions were known at five years after graduation, 32 percent (9) held career positions in Federal or state research laboratories or research regulatory and management agencies; and, 55 percent (11) of the graduates of the Medical Psychology Program held similar appointments. Graduates of the smaller graduate programs also held appointments in government research and regulatory agencies. These positions are held in a diverse range of research, research management, or regulatory affairs positions within Federal or state research organizations. They include the National Institutes of Health and the Virginia State Department of Agriculture and Consumer Services Disease Center located in Ames, Iowa, and the Virginia State Department of Agriculture and Consumer Services in Warrenton, Virginia. Others have positions with non-profit agencies, such as the American Red Cross in Rockville, Maryland; the Henry M. Jackson Foundation for the Advancement of Military Medicine (with graduates located as far afield as the United States Government HIV/AIDS Program in Uganda); and, with the Scripps Research Institute in La Jolla, California.

Several USU graduates hold appointments as civilians with DoD clinical and research organizations, including the Walter Reed Army Medical Center (WRAMC); the Walter Reed Institute of Research; the United States Army Medical Research Institute of Infectious Diseases located in Frederick, Maryland; the Aberdeen Proving Ground; the Army Medical Department Center and School at Fort Sam Houston, Texas; and, other DoD facilities. Uniformed graduates of the USU Graduate Programs have a commitment to continued service in their Uniformed Service, where they often hold a variety of positions with research, research management, teaching, or clinical responsibilities. A few hold educational positions in military establishments. Graduates of both the Pharmacology and Neuroscience Graduate Education Programs have held academic positions in the United States Army Nurse Anesthesia Training Programs at WRAMC; San Antonio, Texas; and, Hawaii. More than 90 percent of the graduates of the

Master of Public Health Program (a program that largely accepts uniformed applicants) return to their individual Services and continue to hold public health related positions.

A number of USU Ph.D. graduates have entered medical school. Some are still in training, with two or three currently holding internships at various hospitals. A few are already in career positions. A Pathology Ph.D. graduate, trained in medicine at Johns Hopkins, is now the Chief of Neurosurgery at the William Beaumont Army Medical Center located in El Paso, Texas. And, a Microbiology graduate is now a pediatrician at the Greater Dundalk Medical Center in Baltimore, Maryland.

A fairly high percentage of USU graduates have moved from post-doctoral appointments to academic positions; 43 percent of the Microbiology and Immunology Graduate Education Program graduates and 16 percent of Medical Psychology Graduate Education Program graduates hold appointments in academic departments at the level of research associate or higher, with many in tenure track positions. Graduates from the Clinical Psychology, Pathology and Pharmacology Graduate Education Programs also hold appointments in the professorial track. These academic appointments are held at well recognized institutions, including the Johns Hopkins University School of Medicine, the University of Maryland School of Medicine, the Yale University School of Medicine, the Albert Einstein School of Medicine in New York, the Mahindol University in Bangkok, as well as USU. Most of the academic appointments are in medical schools, but USU graduates are also represented on non-medical faculties such as the Department of Psychology at Ohio University, the Department of Zoology at Louisiana State University, and the Department of Biological Sciences at California State University located in Sacramento, California. And, a Microbiology graduate holds an assistant professorship at the Northwestern School of Law, at the Lewis and Clark College located in Portland, Oregon.

A smaller, but not insignificant, percentage of USU Graduate Program alumni have taken up positions with research organizations in the private sector of the economy, usually after having first completed at least one post-doctoral position in an academic department. Alumni of the Pharmacology and the Pathology Graduate Education Programs hold research positions at Abbott Laboratories; and, alumni of the Microbiology Graduate Education Program hold positions with the Pharmacia Corporation located in Kalamazoo, Michigan, and with SunModics, Inc., located in Eden Prairie, Minnesota. A Biochemistry Graduate Education Program graduate holds a position with Curragen, a biotech company; and, a Pharmacology Graduate Education Program graduate has just left a major drug company to join an, as yet unnamed, start-up drug development biotech company. A few graduates have taken up positions outside of their area of initial training. A Neuroscience Graduate Education Program graduate is a Master Control Operator in Ontario, California, for a national radio station group; a Microbiology Graduate Education Program graduate is a partner in a law firm; and, a Biochemistry Graduate Education Program graduate is a consultant with Booz-Allen Hamilton, Inc., a law firm. A few graduates have indicated that they are self-employed or working in their homes.

While the USU Graduate Education Program Directors do not have complete statistics on the careers of their graduates, the brief survey described above suggests that alumni of the USU Graduate Programs are reasonably successful at obtaining and advancing in career level positions in their chosen disciplines. Since USU is a DoD institution, and part of its mission is to advance uniformed medicine through research, it is particularly gratifying to note that a sizeable number of USU Graduate Program alumni hold career level appointments in DoD research, clinical, and educational agencies. Furthermore, a sizeable group of other graduates occupy responsible positions in other Federal government agencies

concerned with the general maintenance of the Nation's health. The career successes of alumni of the USU Graduate Education Programs in public service and the Uniformed Services indicate that the University is moving forward in its goal of becoming a national health university dedicated to government service.

Selected Achievements of USU Graduate Degree Program Alumni.

Class of 1984.

Doctor Diane Reddy, Vice Chair, Department of Psychology, University of Wisconsin, Milwaukee, USU Graduate Program Class of 1984, received her Doctoral Degree in Medical and Clinical Psychology from USU in 1984; she has been recognized for her position as Department Vice Chair at the University of Wisconsin.

Class of 1986.

Doctor Raymond Fleming, Chair, Department of Psychology, University of Wisconsin, Milwaukee, USU Graduate Program Class of 1986, received his Doctoral Degree in Medical and Clinical Psychology from USU in 1986; he has been recognized for his position as a Department Chair at the University of Wisconsin.

Class of 1988.

Colonel Robert Gum, USA, USU Graduate Program Class of 1988, who received a Master of Public Health Degree from USU, is the Deputy Command Surgeon for the United States Northern Command at Peterson Air Force Base, Colorado.

Kevin Tonat, Dr.Ph., USU Graduate Program Class of 1988, who received his Master of Public Health Degree from USU, retired from the United States Public Health Service and now serves as the Executive Science Officer for Cosmos Alliance Management, based in Washington, D.C.

Class of 1990.

Lawrence Sung, Ph.D., J.D., USU Graduate Program Class of 1990, who received his Doctoral Degree in Microbiology from USU, is currently serving as a lawyer with the Washington, D.C. based firm of Preston Gates & Ellis, L.L.P. Doctor Sung specializes in intellectual property litigation, life sciences, patents, technology and intellectual property, and technology transfer and commercialization.

Class of 1991.

Taras Masnyk, M.D., Ph.D., USU Graduate Program Class of 1991, who received his Doctor of Philosophy Degree in Pathology from USU, recently left the Army where he served as the Chief of Neurosurgery at the William Beaumont Army Medical Center in El Paso, Texas; Doctor Masnyk has returned to Illinois for civilian practice.

Class of 1993.

Gerard P. Andrews, Ph.D., USU Graduate Program Class of 1993, who received his Doctoral Degree in Microbiology from USU, recently left the Army and is now serving as the Task Area Director for Product Development in the Bacteriology Division of the United States Army Medical Research Institute of Infectious Diseases (USAMRIID) at Fort Detrick, Maryland.

Class of 1994.

Commander Margaret A. K. Ryan, MC, USN, MPH, Director, DoD Center for Deployment Health Research, Naval Health Research Center, San Diego, California, USU Graduate Program Class of 1994, who received a Master of Public Health Degree from USU, heads a team at the Naval Health Research Center that has worked on several initiatives to support, directly or indirectly, those uniformed personnel deployed to Operation Iraqi Freedom. Those initiatives include: equipping Naval Environmental Preventive Medicine Unit 5 and several ships (now forward deployed) to better detect and rapidly diagnose pathogens causing respiratory illness in service members; assisting with the development of augmented post-deployment health assessments, as required by the Office of the Assistant Secretary of Defense, Health Affairs; partnering with the Centers for Disease Control (CDC) to address health concerns related to smallpox and anthrax vaccinations; and, standing ready to expeditiously assess the epidemiology of post-deployment health concerns, as required.

Class of 1995.

CAPT Maura Emerson, MPH, MC, USN, Force Medical Officer, Military Sealift Command, Washington Navy Yard, USU Graduate Program Class of 1995, who received a Master of Public Health Degree from USU, is responsible for smallpox and other immunization tracking programs for all of the military and civilian contractors in the Military Sealift Command. CAPT Emerson also received her M.D. Degree from USU in 1988.

CAPT H. Jeffrey Yund, USN, USU Graduate Program Class of 1995, who received a Master of Public Health Degree from USU, is currently the Preventive Medicine Officer at the Headquarters of the Marine Corps where he serves as the Principal Advisor for Deployment Health Surveillance and the Smallpox and Anthrax Immunization Programs. CAPT Yund recently stepped down as the Chair of the Joint Preventive Medicine Policy Group.

Class of 1996.

Lieutenant Colonel Jeffrey Adamovicz, USAF, Ph.D., USU Graduate Program Class of 1996, who received a Doctoral Degree in Microbiology from USU, currently serves as the Chief of the Bacteriology Division of the United States Army Medical Research Institute of Infectious Diseases at Fort Detrick, Maryland.

Class of 1998.

Lieutenant Colonel Mark Arness, USAF, USU Graduate Program Class of 1998, who received a Master of Tropical Medicine & Hygiene Degree from USU, is currently serving as an Air Force Preventive Medicine Officer at the Army Medical Surveillance Activity and Defense Medical Surveillance System, where he is responsible for post-deployment health surveillance and is involved in adverse event surveillance following vaccination.

CAPT Ken Schor, USN, USU Graduate Program Class of 1998, who received a Master of Public Health Degree from USU, is currently the Preventive Medicine Officer at the Bureau of Medicine and Surgery (BUMED) where he serves as the Principal Advisor to the Surgeon General for Deployment Health Surveillance and the Smallpox and Anthrax Immunization Programs.

Class of 1999.

CAPT Ed Kilbane, USN, USU Graduate Program Class of 1999, who received a Master of Public Health Degree from USU, is currently a team leader of the forward deployed Naval Environmental Preventive Medicine Unit (NEPMU-7) in a classified operational location.

Steven Berkowitz, Ph.D., USU Graduate Program Class of 1999, who received a Doctoral Degree in the Clinical Psychology Program from USU, recently moved from the Veterans Administration Cooperative Studies Program to become the Director of the Division of Operations and Committee Support, Coverage and Analysis Group, Center for Medical and Medicaid Services located at the headquarters in Baltimore, Maryland. Doctor Berkowitz will be involved in the scientific evaluation of the evidence base for Medicare's National Coverage Decisions.

Class of 2000.

Lieutenant Commander Tanis Batsel, USN, USU Graduate Program Class of 2000, who received a Master of Public Health Degree from USU, is currently assigned as the Chief of the Preventive Medicine Branch for the United States Northern Command and the North American Aerospace Defense Command (NORAD) at Peterson Air Force Base, Colorado.

Class of 2001.

Major Philip L. Gould, MPH, DTMH, USAF, MC, Preventive Medicine Consultant, Deployment Health Surveillance/Suicide Surveillance, Epidemiology Services Branch, Air Force Institute for Environmental Safety and Occupational Health Risk Assessment, Brooks City-Base, Texas, USU Graduate Program Class of 2001, who received a Master of Public Health Degree from USU, is currently assigned with deployment surveillance for all of the Central Command (CENTCOM) and assisting command units at the Air Force Institute for Environmental Safety and Occupational Health Risk Assessment (AFIERA). Personnel at AFIERA are at the forefront of surveillance for currently deployed troops, with responsibilities to provide routine briefs and reports for: the Secretary of Defense; the Assistant Secretary of Defense, Health Affairs; and, the Joint Chiefs of Staff.

Major Mylene Huynh, USAF, USU Graduate Class of 2001, who received a Master of Public Health Degree from USU, is currently assigned as the Deputy Chief of Preventive Medicine at the Office of the Surgeon General of the Air Force, where she serves as an advisor for Deployment Health Surveillance and the Smallpox and Anthrax Immunization Programs.

Class of 2002.

Commander Byron Conner, USN, USU Graduate Program Class of 2002, who received a Master of Public Health Degree from USU, is currently a member of the forward deployed Naval Environmental Preventive Medicine Unit (NEPMU-2) in a classified operational location.

Lieutenant Commander Charles McCannon, MC, USN, USU Graduate Program Class of 2002, who received a Master of Public Health Degree from USU, passed the Certified MBA Examination and was awarded the CMBA Designation by the International Certification Institute. He is among the first group of MBAs to earn the distinction.

V. GRADUATE MEDICAL EDUCATION

ESTABLISHMENT

Background - Graduate Medical Education Programs in the Military Health System.

Graduate medical education (GME) comprises the second phase of the formal educational process that prepares physicians for medical practice. GME is required of all medical school graduates seeking full medical licensure and board certification in one of the specialties and/or subspecialties of medicine. This phase of medical education is, of necessity, conducted primarily in clinical settings, and requires direct participation by residents in the delivery of patient care services under the supervision of a teaching physician. Conducting high quality GME has always been a demanding undertaking. Ensuring an optimal learning environment and creating a proper balance between education and patient care activities have been the principal challenges to medical educators. In recent years, those challenges have become increasingly formidable due to the impact that the tremendous changes in the health care delivery system have had on the patient care environments in which GME is conducted. Certain of these changes have presented particularly difficult challenges for GME. Of special note, the shortened length of hospital stays, the increased emphasis on ambulatory care, the reductions in support staff, and the increased acuity of the average in-patient have placed increased demands on residency programs across the United States. The military GME programs in the National Capital Area have addressed many of these concerns through the use of simulated patients and virtual clinical experiences as discussed later in this section.

Following their graduation from the USU School of Medicine (SOM), the USU physician-graduates become active duty officers in the Military Health System (MHS) and are assigned to serve as residents in the MHS Graduate Medical Education Programs. The length of time served as a resident depends upon the individual specialty area. Residents in the MHS enjoy unique educational advantages. For example, the uniformed faculty at the military teaching hospitals are present on a full-time basis, ensuring a level of involvement in student and resident (GME) education that is unmatched at other settings. The military GME system is second in size only to that of the Department of Veterans Affairs; and, it is committed to medical education at all levels over a broad range of disciplines. The National Capital Consortium (NCC) residents, as well as all other residents in the integrated GME programs throughout the Military Health System, significantly benefit from the dedicated uniformed faculty and staff who provide educational GME programs and training at the military medical centers. And, as mentioned above, the NCC resident also has the advantage of participating in state-of-the-art simulated education and training.

The military resident, in most programs, also serves as an educator or trainer of medical students and junior residents. This proves to be a unique growth opportunity; and, most often, the resident comes to understand that teaching is actually an advanced expression of learning. Preparation for student lectures and teaching rounds is a reiterative process that consolidates the resident's own base of medical knowledge. The USU medical students and the more junior NCC residents are the indirect beneficiaries of the senior residents' training as they observe and participate in conferences, activities and clinics directed toward their education.

Simulated Operating Rooms for Specific Specialties Are Available on the USU Campus.

Advanced training is provided by the USU Clinical Simulator and Patient Simulation Laboratory (PSL), which is fully equipped with all of the functional equipment of an operating room, to include standard monitoring equipment, a life support system (anesthesia machine and ventilator), a defibrillator, and instruments used in treatment. The PSL also includes complete audio/video recording and playback equipment. Training sessions are recorded; and, immediately following, the residents review their performance with their instructors. The simulated patient provides a unique opportunity to experience relatively rare cases, military relevant, and combat trauma scenarios. The residents gain experience in recognizing problems, developing decision-making skills, familiarizing themselves with instruments and equipment, and refining techniques and procedures. Residents are able to repeat the scenarios until they are performed correctly. Residents from the NCC GME Anesthesiology Program, receive intense training. Scenarios are designed to present specific patients who provide complex clinical problems; thus, critical experience is acquired without putting human patients, or the residents, at risk.

The National Capital Area Medical Simulation Center Offers State-of-the-Art Simulated Training.

Following collaborative efforts that began in 1995, USU and the Surgeons General of the Army, Navy and Air Force instituted a new teaching facility, the National Capital Area Medical Simulation Center (SIMCEN), in support of numerous and distinct medical education programs. The SIMCEN, a satellite facility located in Silver Spring, Maryland, began initial operations in the Fall of 1999, and remains one of the few places in the United States that combines multi-simulation techniques under one roof. This state-of-the-art teaching facility allows health professionals to augment their skills through patient simulations, virtual reality applications, and training with mannequin simulators. It uses technology and actors posing as patients to teach the NCC GME residents about situations that they may encounter as practitioners but might not otherwise experience while training in hospital wards. The SIMCEN also provides the instruction of readiness skills and focused pre-deployment training for wartime, peacekeeping, and humanitarian missions. During 2003, the SIMCEN supported over 23 GME educational activities (the SIMCEN is described at length in Section I of this report).

The USU School of Medicine Office of Graduate Medical Education (GME). The USU SOM Office of Graduate Medical Education was established in 1986 to provide consultation on GME programs (internship, residency, and fellowship training for physicians) for Program Directors and the Office of the Assistant Secretary of Defense for Health Affairs (OASD/HA). From 1986 to present, USU GME, under the leadership of the Associate Dean for Graduate Medical Education, has provided DoD-wide consultation and oversight for numerous GME programs.

MISSION

USU Office of GME Serves as a Significant Academic Component for Graduate Medical Education in the Military Health System. The University is directed to educate and train competent medical personnel qualified to serve the needs of the MHS through the provision of quality education programs in the health sciences. The Graduate Medical Education Programs of the MHS are of critical importance to both the University and to the entire network of Military Treatment Facilities. In light of this, the USU SOM Office of Graduate Medical Education serves as a significant academic component in the development of the medical expertise of the MHS residents in their assignments throughout the military GME programs. The following responsibilities are currently assigned to the USU GME program: 1) oversight for the National Capital Consortium; the USU SOM Associate Dean for Graduate Medical Education serves as the NCC Administrative Director; 2) collection and evaluation of data on the DoD GME programs to ensure academic and scientific excellence; 3) oversight for the integration of the DoD GME programs to ensure that accreditation is not jeopardized; and, 4) provision of consultation and advice for the Dean, School of Medicine, the President, USU, and others on military-unique medical curricula.

POLICY FOR MILITARY UNIQUE TRAINING IN DOD-SPONSORED GRADUATE MEDICAL EDUCATION PROGRAMS

The USUHS shall coordinate efforts of the Services in developing the necessary curricula (for military unique training in DoD-sponsored Graduate Medical Education Programs) and shall establish a centralized repository of information on educational materials and courses to support the implementation of the curricula.

- Policy Memorandum, Office of the Assistant Secretary of Defense, Health Affairs, dated June 28, 1999, page one.

Graduate Medical Education Policy Is Issued by the Assistant Secretary of Defense for Health Affairs on June 28, 1999. In a memorandum dated June 28, 1999, the Assistant Secretary of Defense for Health Affairs (ASD/HA) stated that the Graduate Medical Education (GME) Programs conducted for military trainees in DoD facilities offer an opportunity to include military unique aspects to prepare physicians for the rigorous demands of practice in a wartime or contingency environment. The memorandum pointed out that it is essential for the military medical services to avail themselves of this opportunity in a comprehensive, yet efficient, manner; and, that new policies relative to DoD-sponsored GME programs are being established.

Army Graduate Medical Education (GME) Programs are the keystones to the quality of Army Medicine. Our GME Programs include military-unique aspects of a given specialty, which prepare physicians for the rigorous demands of practice in a wartime or contingency environment. Residents receive orientations and lectures concerning war zone injuries, trauma, and military deployments. Additionally, they attend formal training which includes a centralized combat casualty care course, advanced trauma life support, and medical management of chemical and biological casualties. After completing an Army Graduate Medical Education Program, a physician is uniquely qualified to deploy at all levels within the theater of operations to support the military medical mission. We now place board-certified physicians in our brigade and division surgeon positions to ensure that our divisional soldiers receive the highest levels of care regardless of where they are in the world.

- Lieutenant General James B. Peake, the Surgeon General of the Army, Testimony before the House Committee on Armed Services, Subcommittee on Defense, April 10, 2002.

Each Program Must Include a Military Unique Curriculum that Is Standardized and Specialty Specific. The GME Policy Memorandum of June 28, 1999, specified that at the entry level, each GME program must incorporate a standardized curriculum, which includes a core of those topics essential to every physician who will practice medicine in the military. This curriculum should be augmented by an orientation to field medicine such as the Combat Casualty Care Course (C4) or equivalent experience. The curriculum should be designed to complement, not replace, military training obtained through other means and only those elements that are both necessary and appropriate to the GME education program should be included. Beyond the entry year, each program should also include a military unique curriculum that is standardized and specialty specific. For subspecialty training, the curriculum may be directed toward the projected utilization of the trainee, usually in his/her core specialty. An appropriate exposure to the practice of the specialty in an austere or contingent environment should be an essential element of each program.

USU School of Medicine Office of Graduate Medical Education Coordinates the Development of Curricula. The USU School of Medicine Office of Graduate Medical Education was tasked by the Assistant Secretary of Defense for Health Affairs to coordinate the efforts of the Services in developing the necessary curricula and to establish a centralized repository of information on educational materials and courses to support the implementation of a military unique curriculum that is both standardized and specialty specific.

The policy memorandum also directs that military unique training in GME programs must be documented on an annual basis and reported to the ASD(HA) by the Services by September 30 of the completed training year. Each program review must confirm that a military unique curriculum is in place and that it is being utilized; it should also confirm that appropriate opportunities to experience specialty practice in constrained environments exist and are being utilized.

Following the receipt of the June 28, 1999, Policy Memorandum, the military unique curriculum for each major specialty was developed and posted on the Graduate Medical Education Web Site <<http://cim.usuhs.mil/dodgme/>>. Subject matter expert panels are currently being reconstituted to accomplish the biennial revision.

NATIONAL CAPITAL CONSORTIUM

Development of the National Capital Consortium. In 1993, the Assistant Secretary of Defense for Health Affairs directed that duplicative GME programs in the National Capital Area and San Antonio must be integrated or closed. This led to the establishment, in January of 1995, of the National Capital Military Medicine Education Consortium consisting of the Walter Reed Army Medical Center (and its subordinate command, the Dewitt Army Hospital located at Fort Belvoir, Virginia), the National Naval Medical Center, the Malcolm Grow Medical Center, and the USU School of Medicine. At that time, there were 86 programs located at five sites.

Ten GME programs were integrated into five during the first year of the Consortium's existence. In 1997, the Consortium was site surveyed by the Accreditation Council for Graduate Medical Education (ACGME) and received a favorable decision by the ACGME as an institutional sponsor. Later that year, the administrative headquarters was relocated to USU and **Howard E. Fauver, Jr., M.D., Associate Dean for Graduate Medical Education**, became the Administrative Director. Also during 1997, the name was changed to the National Capital Consortium (NCC). Growth of the NCC continued sporadically over the next few years; and, it was not until 2002, that the last of the GME programs in the National Capital Area came under the sponsorship of the NCC, bringing the current total to 65 programs. During 2001, the NCC was again approved by the ACGME as an institutional sponsor for the maximum five-year period.

Mission of the National Capital Consortium. The National Capital Consortium (NCC) serves as the institutional sponsor for the GME integrated programs offered by the three major Medical Treatment Facilities (MTFs) in the National Capital Region: the Walter Reed Army Medical Center, the National Naval Medical Center, and the Malcolm Grow Medical Center. The three MTFs comprise the NCC membership; and, the USUHS SOM serves as the fourth, and final, member of the NCC. The USU Office of GME also serves as the Administrative Office for the NCC.

The mission of the NCC is to educate physicians and oral surgeons who provide care for the soldiers, sailors, airmen, and marines of all ages, throughout the Military Health System, to include their families. The NCC provides a scholarly environment and is dedicated to: excellence in both education and health care; and, the provision of ethical values and standards to all trainees, such as would be expected of those who devote their lives to careers in public service. Information about the NCC programs, governance, Bylaws, and NCC Administrative Handbook can be accessed via the NCC web site: <<http://www.usuhs/mil/gme/NCC.htm>>.

Accreditation. The Accreditation Council for Graduate Medical Education (ACGME) is responsible for the accreditation of post-medical doctorate (M.D.) physician training programs within the United States. Accreditation is accomplished through a peer review process and is based upon established standards and guidelines. *The mission of the ACGME is to improve the quality of health care in the United States by ensuring and improving the quality of graduate medical education experiences for physicians in training.* The ACGME established national standards for graduate medical education by which it approves and continually assesses education programs under its aegis. It uses the most effective methods available to evaluate the quality of graduate medical education programs; and, it strives to improve evaluation methods and processes so that they are valid, fair, open, and ethical. In carrying out these activities, the ACGME is responsive to change and innovation in education and current practice; it promotes the use of effective measurement tools to assess resident physician competency; and, it encourages educational improvement.

The National Capital Consortium (NCC), by supplying leadership and resources, complies with the ACGME Institutional Requirements and ensures that Consortium-sponsored programs comply with ACGME program requirements. Consortium-sponsored GME programs comply with ACGME program requirements; and, an increasing number of maximum-term five-year accreditations are being attained. Consortium-sponsored GME programs operate under the authority and control of the Consortium (NCC). And, the Consortium regularly assesses the quality of the NCC educational programs. Despite the impact of the war in Iraq, the education mission continues to be met through the dedication and hard work of those who have not been deployed and remain in the NCC programs.

New Programs. In 2003, the NCC added a new program sponsored by the USU SOM Department of Anesthesia. The program, *Regional Anesthesia*, located at the Walter Reed Army Medical Center (WRAMC), is an advanced fellowship designed to produce leaders in anesthesia. Although the program is not eligible for ACGME accreditation, it is well suited to meet the needs of the Military Health System.

Also during 2003, the NCC added a *Fellowship Program in Female Reconstructive and Pelvic Surgery*, formerly Urogynecology, at the Walter Reed Army Medical Center. The program had previously been located at the Madigan Army Medical Center in Tacoma, Washington. A three-year program, the fellowship will be accredited by the American Board of Obstetrics and Gynecology.

NCC/GME Awards and Distinctions (2002-2003).

As in previous years, the residents, fellows and faculty in the NCC GME Education Programs garnered numerous distinctions and awards. The following are selected examples:

- **Eleven NCC Dermatology Program Residents** had presentations accepted at *The American Academy of Dermatology Presidential Annual Meeting*;
- **The NCC WRAMC Internal Medicine Program** had 8 peer-reviewed publications and 3 abstracts selected for poster presentations, out of several thousand submissions, nationwide, at *The National American College of Physicians Meeting*;
- **Major Andrew Shorr, MC, USA, USU SOM Class of 1996, Internal Medicine Pulmonary and Critical Care Fellowship**, received the *WRAMC DOM Teacher of the Year Award* and the *USU Medical Student Teacher of the Year Award*;
- **A Resident from the NCC Orthopedic Program** received the *Bailey K. Ashford Award for 2003* and the Orthopedic Staff received recognition from the *Traveling Fellow Scoliosis Research Society*;
- **Commander George McKenna, MC, USN, Program Director for the NCC Neurology Program**, was inducted into the *Senior Society of Neurosurgery Service*;
- **Lieutenant Colonel Marc P. Difazio, MC, USA, USU SOM Instructor, NCC Child Neurology Fellowship**, was recognized by *The American Academy of Neurology and Neuromuscular Consensus Panel* for his publications and expertise in *Botulinum Toxin RX in Children*;
- **Major Joshua S. Rotenberg, USAF, MC, USU SOM Assistant Professor of Neurology, NCC Child Neurology (Graduate - 2003)**, received *The American Academy of Pediatrics Award* for his proactive approach to pediatric chemical terrorism defense; he was also named as a *Consultant to the USAF Surgeon General*;
- **Colonel William P. Madigan, Jr., MC, USA, USU SOM Associate Professor of Surgery, USU SOM Class of 1982, Chief of Ophthalmology**, received *The USA MEDCOM Order of Military Medical Merit*;
- **Lieutenant Colonel Eiseman, MC, USA**, serves as a *Board Examiner for The American Academy of Ophthalmology*;
- **Colonel Ward, MC, USA, Program Director, NCC Ophthalmolgy Program**, is a *Counselor to The American Academy of Ophthalmology*;
- **CAPT Jerri Curtis, MC, USN, Director, NCC Pediatric Neonatology Program**, received *1st Place in a Scientific Competition (SPONS) of the American Academy of Pediatrics*;

- **Lieutenant Commander Kasowski, MC, USN, (Graduate 2003)**, received the *Award for the Best Poster Presentation* at *The National Annual Meeting of the Association of Teachers of Preventive Medicine*; and,

- **Colonel Bradshaw, USAF, MC**, was elected as a *Member of the Delta Omega National Honorary Public Health Society*.

American Medical Association Foundation Leadership Awards. During 2003, the American Medical Association Foundation presented its first annual Excellence in Medicine Awards in Washington, D.C. Two of the recipients, mentioned above, participated as a Fellow and Resident in the NCC GME Programs. **Major Joshua Rotenberg and Major Andrew Shorr** were among the 52 doctors and 25 medical students selected for the inaugural annual award program, which recognizes students, residents, fellows and young physicians nationwide who have demonstrated non-clinical leadership in medical arenas, civic organizations, and community service organizations.

Major Joshua S. Rotenberg, USAF, MC, USU SOM Assistant Professor of Neurology, NCC Child Neurology (Graduate - 2003), served as a Fellow in Child and Adolescent Neurology at the Walter Reed Army Medical Center. He is a founding member of *The Working Group on Chemical and Biological Terrorism* in the Department of Pediatrics at WRAMC; and, he is recognized as a national authority on nerve agent exposures in children. As a resident, he represented his peers on committees examining medical ethics, medical education, and community relations.

Major Andrew Shorr, MC, USA, USU SOM Class of 1996, Internal Medicine Pulmonary and Critical Care Fellowship, who completed Aerospace and Occupational Medicine Residency Programs at the United States Air Force School of Aerospace Medicine, Brooks City-Base, San Antonio, Texas, is currently assigned to McGuire Air Force Base, New Jersey. He has provided medical support for troops around the globe throughout a number of worldwide deployments, including operations in Kosovo and Iraq.

Scholarly Activity.

The *NCC Faculty* produced over 706 articles, 600 abstracts, and 139 book chapters.

The *NCC Residents* and *NCC Fellows* have contributed, or co-authored, 204 articles, 271 abstracts, and 23 book chapters.

Board Certification.

Board certification rates continue to be high, approaching 100 percent in a majority of the NCC Program Specialties.

A Selected Example of GME and GME Staff Contributions to DoD Mission Requirements.
During 2003, the Allergy-Immunology GME and GME Staff at the Walter Reed Army Medical Center (WRAMC) significantly contributed to Department of Defense Mission Requirements.

The Allergy-Immunology GME Staff at WRAMC supported the launch of the Smallpox Vaccination Program through its support for three mission-related research protocols by: 1) validating the safety of vaccinia in collaboration with USAMRIID: *Determining the rate of Pharyngeal Shedding in Smallpox Vaccinees*; 2) collaborating with infectious disease researchers to determine the rate of vaccinia in the blood of vaccinees; and, 3) defining the range of immune responses to smallpox vaccination in relation to side effects and local reactions. Staff consultation support was also provided during the development of all smallpox vaccination training, tools, and testing for the program launch in December of 2003. The Allergy-Immunology GME Staff also supported the DoD/Centers for Disease Control (CDC) Collaborative Vaccine Healthcare Center Network throughout 2003, with development and outreach in the form of over 160,000 contacts, assisting service members, healthcare workers (DoD and CDC), and beneficiaries with medical exemption screening, exemptions, and complex case management. In addition, the Allergy-Immunology GME Staff provided consultation and leadership during the military review of accession standards for asthma and the rewrite of the relevant DoD policy. ***The expertise and program testing described above would not have been available in the civilian medical community.***

VI. THE OFFICE OF CONTINUING EDUCATION FOR HEALTH PROFESSIONALS

Continuing Health Professional Education responds to the needs for professional development for military health care professionals around the world. All uniformed practitioners are required to receive continuing education, and have a choice from civilian, military, and USU sources. USU offers a unique blend of the military application as well as collaborative expertise that is able to pull from all of the armed services branches - Army, Navy, Air Force - through the leadership of the USU. Those military members seeking professional development through a single armed service would typically be limited to information for their branch. The USU is uniquely accredited (i.e., Accreditation Council on Continuing Medical Education, American Psychological Association, and American Nurses Credentialing Center's Commission on Accreditation) to address all aspects of health care education across all branches of the military... The Team suggests the USU investigate ways to further promote this unique opportunity to provide continuing education to all branches of the military.

- **Educational Program and Curricula, Continuing Health Professional Education**, Report to the Faculty, Administration, Trustee, Students of USU, Middle States Commission on Higher Education, prepared for the 2003 site visit, page 11.

MISSION

USU is Mandated by Congress to Provide Continuing Education for Health Professionals. Under Title 10, U.S. Code (Section 2113), USU is mandated by Congress to “establish programs in continuing medical education for military members of the health professions to the end that high standards of health care may be maintained within the military medical services.” The mission of the USU Office of Continuing Education for Health Professionals (CHE) is to sponsor, directly or jointly, activities in continuing education for members of the Federal health care delivery system ensuring achievement of the Congressional mandate. This standard of excellence is achieved through a vigorous and creative evaluation process.

The Office of CHE plays a central role in facilitating the continued professional growth of health care professionals in the Federal Services by providing live courses and conferences, enduring materials, and web-based continuing education (CE). In addition, the Office of CHE establishes activities for non-Federal civilian health professionals in disciplines where the body of knowledge is available primarily within the Federal Services medical domain and when that knowledge will contribute to the health of the Nation, other countries, or the global community.

Six Factors Mandate CHE's Essential Role in Today's Military Health System. Continuing Education has always been recognized as an essential component of the continuum of education for health professionals. Current educational, social, and political factors that highlight the critical role of CE in the educational spectrum follow:

Enhanced awareness of proactive health care provider response to worldwide threats;

Incorporation of evidence-based medicine, clinical practice guidelines, and accountability into daily medical practice;

Heightened patient safety accountability;

Recognized CE value for provider skill level competency for medical readiness and deployment scenarios;

Increased demand to deliver cutting-edge CE and rapid advances in biomedical knowledge, clinical practice guidelines, and health care technology; and,

Focused partnerships between military medicine, other Federal, and private sector medicine.

CHE Must Ensure Academic Involvement in all Phases of Educational Activities Designated for Credit. The Office of Continuing Education for Health Professionals is under the leadership of the Senior Executive Director, who reports directly to the USU President, and is responsible for administrative/academic involvement in all phases of the educational activities designated for credit, to include:

- Needs assessment, planning, implementation, and evaluation of continuing education activities for members of the health professions serving in the Uniformed and other Federal Services. Continuing education activity topics are based on formal surveys, structured interviews, current professional topics, and higher authority directives. In every case, the particular interest, needs, and learning styles of the specific audience are considered during planning, preparation, delivery, and evaluation;
- Acquisition and maintenance of continuing education accreditation at USU; attendance at professional conferences and meetings conducted by the accrediting agencies or peer groups to ensure University compliance with all continuing education requirements

of the Accreditation Council for Continuing Medical Education, the American Nurses Credentialing Center's Commission on Accreditation, the American Psychological Association, the American College of Healthcare Executives, and the State of Maryland Department of Health and Mental Hygiene Board of Social Work Examiners;

- Administrative and logistical support and determination of budgetary requirements for continuing education activities sponsored by the University;
- Maintenance of professional and educational liaisons with military and civilian professional organizations and academic institutions; and,
- Monitoring the quality of continuing education activities and using evaluative and outcome data to improve the quality of future activities at the University. Annual total program evaluations identify areas where improvement could enhance the continuing education services provided by the University. Mechanisms, such as the evaluation of events by participants, by faculty, and by office staff, help to improve the quality of similar forthcoming events. A consistent focus on developing employee potential through cross training within the office and additional training within the University and from outside sources also improves the provision of services. Continuous quality improvement is active in all areas of the CHE Office.

NATIONALLY RECOGNIZED CONTINUING EDUCATION CREDIT

Unique Accreditation Within the Military Health System. The USU Office of Continuing Education for Health Professionals provides nationally recognized continuing education credit for physicians, nurses, psychologists, health care executives, and social workers through its accreditation by: 1) the Accreditation Council for Continuing Medical Education (accredited through July of 2005); 2) the American Nurses Credentialing Center's Commission on Accreditation as a Provider of Continuing Education in Nursing (accredited through August of 2007); 3) the American Psychological Association (accredited through February of 2008); 4) the American College of Healthcare Executives (ACHE) authorized USU to award pre-approved Category II (non-ACHE) continuing education credit through May of 2005; and, 5) the State of Maryland Department of Health and Mental Hygiene Board of Social Work Examiners (indefinitely). This inclusive provision of continuing education for multiple disciplines, from one office, is believed to be unique within the Military Health System (MHS).

The Office of CHE, under the academic umbrella of the University, is exceptionally positioned to perform a significant role in facilitating the continued professional growth of health care professionals in the MHS. The principal responsibilities of the office are the identification of educational needs, planning, implementation, and the evaluation of continuing education activities and outcomes and resuscitative medicine programs for members of the health professions. CHE is also responsible for the acquisition and maintenance of the University's continuing education accreditations and for the trauma and resuscitative medicine training program affiliations.

The Continuing Health Education Committee. The Continuing Health Education Committee (CHEC) serves as an approving body and as an advisory committee to the USU President and to the Office of CHE. The USU President appoints the CHE Committee members. Other faculty members are invited to participate in the committee activities on an *ad hoc* basis. The committee membership, across all disciplines and departments, facilitates communication and provides a forum for planning education activities and for the discussion of issues and policies that affect continuing medical education.

The CHEC has incorporated an internal evaluation system for all sponsorship requests through which individual requests are scored against a matrix representing the Accreditation Council for Continuing Medical Education Essential Elements. A comprehensive tally is generated of the individual requests in consultation with the CHEC, resulting in direct CHEC oversight during the selection process for all USU CME activities. Additionally, the CHEC has formed task forces to identify additional avenues for USU to: increase its CHE offerings with emphasis on evidence-based CME; strengthen content validation; and, actively institute a multi-system evaluation. In all cases, committee members bring a wealth of experience and perspective to the CHEC as an oversight body.

INCREASED SUPPORT FOR THE MILITARY HEALTH SYSTEM

CHE Support for Graduate Medical Education Programs. In conjunction with the National Capital Consortium (the institutional entity for the National Capital Region's GME-integrated programs offered by the Walter Reed Army Medical Center, the National Naval Medical Center, and the Malcolm Grow Medical Center), the Office of CHE's involvement has greatly increased through the sponsoring of on-going continuing medical education (CME) activities such as Grand Rounds in Anesthesia, Cardiothoracic Surgery, Faculty Development, General Thoracic Surgery, GYN Oncology Tumor Planning, Ophthalmology, Pediatrics, and Psychiatry.

CHE Support for TRICARE/Health Affairs Initiatives. During Fiscal Year 2003, the USU Office of CHE supported the Office of the Secretary of Defense (OSD), Health Affairs (HA) with the following activities: DoD Patient Safety Program Training and the new Med Teams Training; the DoD Smallpox Preparedness Conference; the DoD Suicide Prevention Conference; the Epidaurus Conference on Patient-Centered Care; the TRICARE Winter Conference plus several other regional TRICARE conferences; the Health Information and Management Systems Society Conference; four Medical Executive Skills Courses; 23 Medical Effects of Ionizing Radiation (MEIR) Courses both within the continental United States and overseas; a videotaped MEIR Course; two iterations of the Interagency Institute for Federal Health Care Executives Course; and, the DoD Seminar: *Improving the Quality of Life of Military Families with Special Needs*.

Specialty and Review Courses for the Military Health System. The Office of CHE sponsored continuing education for numerous specialty and review courses for the Military Health System during 2003. The following examples convey the scope of service to the Uniformed Services.

Medical Readiness - The Military Medical Humanitarian Assistance Course. The Military Medical Humanitarian Assistance Course is a two-day interactive course designed to train United States military health care providers to deliver optimal medical care to civilian populations, primarily women and children, in the aftermath of humanitarian emergencies. Prior to this course, a void existed in preparing medical officers with the necessary skills, knowledge, and confidence to actively participate in such missions. Given the United States military's increasing involvement in Military Operations Other Than War (MOOTW), the focus of this course is centered on familiarizing clinicians with the unique aspects of humanitarian missions, so that they are best prepared to actively participate and lead future missions. Though the health issues are often predictable, the paradigm presents issues that rapidly progress to the severest degree. Resources are typically more limited than in other operations, complicating any attempt for immediate intervention. The course emphasizes practical skills and techniques, not often addressed in the curriculum of American medical education, which will be useful to the provider who is challenged to provide the best possible medical care in an austere environment. The faculty, who present this course,

are committed to the quality and credibility of this educational experience. All clinical instructors have had personal experience practicing medicine in an austere health environment. All of the clinical cases are derived from real experiences in operational medicine. This course was developed at USU under the sponsorship of the Dean, School of Medicine, and the Department of Pediatrics. During 2003, the course was held nine times for 126 physicians, 13 nurses, and 35 others.

Distance Activities. During Fiscal Year 2003, there was a marked increase in Internet activities. Currently, the following activities are available:

DoD Smallpox Vaccination: Standard Training - The threat of smallpox provided the momentum for a partnership between the DoD Military Vaccine Agency (MILVAX) and USU. *DoD Smallpox Vaccination: Standard Training* consists of sessions grouped specifically for three levels of professional smallpox vaccination program responsibility. USU provides continuing education for physicians, nurses, and members of the American College of Healthcare Executives (ACHE). About 3,000 participants have successfully completed these sessions. Of these, 359 physicians, 250 nurses, and 21 ACHE members earned up to 53.5 continuing medical education (CME), 63.7 continuing nursing education (CNE), and 10.5 category II (non-ACHE) credit. This program is available at <<http://dod.digiscript.com>> at no cost;

Military Vaccine Agency (MILVAX) Spokesperson Training Course - *The Military Vaccine Agency (MILVAX) Spokesperson Training Course* started during Fiscal Year 2004. It is a condensed version of a three-day conference, which provides a variety of information related tasks regarding the Anthrax Vaccine Immunization Program (AVIP) and the Smallpox Vaccination Program (SVP) through either an administrative or clinical focus. USU provides continuing education for physicians, nurses and members of ACHE. This activity is available at <<http://dod.digiscript.com>> at no cost;

MedPix - An On-Line Medical Image Database - In addition, *MedPix, an on-line Medical Image Database*, has been developed by the School of Medicine Departments of Radiology and Radiological Sciences and Biomedical Informatics at USU. MedPix provides a summary of case studies with images and links for further study. This site targets practicing physicians and nurses, residents, medical students, and graduate nursing students and enables them to enhance their diagnostic skills. Participants who successfully complete four cases are awarded one category 1 credit for physicians and 1.2 contact hours for nurses. CHE has awarded over 1,000 continuing education credits since April of 2003. This program is available at <<http://rad.usuhs.mil/medpix>> at no cost;

On-Line Education Series Focused on Quality of Care - The National Quality Management Program (NQMP) collects data on key health care quality indicators from Military Treatment Facilities, analyzes it, and compares findings to national benchmarks. A partnership was formed with the Affiliated Computer Services (ACS) Federal Healthcare, TRICARE Management Activity, and USU to produce an educational program to positively influence the quality of care provided to military health care beneficiaries. *This on-line education series currently has ten activities on the Military Health System:*

Childhood Immunization; Chlamydia Screening; Breast Cancer Screening; Cervical Cancer Screening; Asthma Care; Tobacco Use Cessation; Management of Dyslipidemia; Diabetes Care; Post Deployment Health; and, Depressive Disorder Care. USU provides continuing education credit for physicians, nurses, social workers, and psychologists. This educational series is available at <<http://www.nqmp.info>> at no cost;

Learning Center Series of the Military Health System Optimization & Population Health Support Center - On-line since January of 2004, the *Learning Center Series of the Military Health System Optimization & Population Health Support Center (MHSOPHSC)* focuses on the theory and benefits of individual health optimization through population health improvement. *Delivered via the Internet, this series has eight activities, including: Case Management 1 and 2; Value of Accurate Preventive Medicine Coding; Utilization Management 101; Milliman Ambulatory Care Guidelines - 8th Edition; Overweight and Obesity Professional Education; 12-Step Utilization Management Process; and, InterQual Products Overview.* USU provides these continuing education activities for physicians, nurses, and social workers at <<http://www.mhsophsc.org/public/home.cfm>> at no cost;

Medical Responses to Weapons of Mass Destruction - The *Medical Responses to Weapons of Mass Destruction*, an interactive, on-line course, was designed to provide information and decision skills critical to the successful management of patients exposed to biological warfare agents. World-recognized experts from USU developed the course content. Teaching methods include audio and print lectures, case studies, and tests to measure content mastery. During the past year, USU provided 25 physicians up to 18 category 1 credits. The course is available to institutional purchasers at <www.wmdcourse.com>; and,

On-Line Forum for Current Advancements in Deployment Medicine - The Journal of Special Operations Medicine is a quarterly peer-reviewed journal geared to Special Operations Forces medical professionals. Its mission is to promote the professional development of Special Operations medical personnel by providing a forum for the latest relevant advancements in deployment medicine. USU provides continuing education to health providers who read the article(s) and successfully complete the post-test(s). The Journal of Special Operations Medicine is available at <<http://www.hurlburt.af.mil/jsou>>.

Other Courses/Activities Sponsored by CHE During 2003:

The International Spine Workshops - (Cervical, Peripheral Nerve, Thoraco-Lumbar);

The Twelfth Annual Capital Conference Family Practice Board Review - For family physicians in preparation for the American Board of Family Practice Certification Examination;

Surgical Topics - (Advanced Gynecological Laparoscopy and Hysteroscopy, Gynecologic Surgical Pelvic Anatomy and Dissection, Video-Assisted Thoracic Surgery, Hand-Assisted Laparoscopic Nephrectomy, the 30th Military Vascular Surgery Symposium, and the 17th Annual Pediatric/Pediatric Surgery Symposium);

TriService Video Endoscopy - Three TriService Video Endoscopy for Perioperative Nurses activities; and,

Bioethics at Forward Deployed Medical Treatment Facilities: Ways of Knowing, Ways of Doing.

Association of Military Surgeons of the United States (AMSUS) Annual Meeting. Since the 99th Annual Meeting in 1992, CHE has worked with AMSUS to provide continuing education credit for their Annual Meetings. AMSUS was established in 1891, and incorporated by an Act of Congress in 1903, as the Society of the Federal Health Agencies. As such, it contributes to the improvement of all phases of the Federal Health Services. The constituent services of AMSUS include the medical departments of the United States Army, Navy, Air Force, and Public Health Service, and the Department of Veterans Affairs. For Fiscal Year 2003, the Surgeon General of the Air Force hosted the 108th Annual Meeting, *Relevant and Reasonable: The Future of Federal Healthcare*, held on November 10 - 15, 2002, with 4,838 attendees, in Louisville, Kentucky. This was the first meeting after the cancellation of the November 2001 meeting. During Fiscal Year 2003, the USU Office of CHE offered 127 sessions for continuing education credit in five disciplines (a significant increase from the 47 sessions offered in two disciplines during Fiscal Year 1993).

GENERATED COST AVOIDANCE FOR DOD BY CHE

CHE Generates Cost Avoidance for DoD - \$4,769,942. In carrying out its principal responsibilities during Fiscal Year 2003, CHE sponsored continuing medical education for 969 activities with an attendance of 7,409 physicians; provided continuing nursing education for 88 activities with an attendance of 2,532 nurses; approved Category II (non-ACHE) continuing education credit for 34 programs for 692 members of the American College of Healthcare Executives; and, provided eight continuing education activities for 72 psychologists and four activities for 101 social workers. Because the USU Office of CHE brings medical training to the medical health care professionals, an estimated cost avoidance of \$4,769,942 was generated for the DoD by eliminating extensive travel expenses and time away from the hospitals and clinics (the total cost avoidance was calculated by subtracting all of the operating costs for the USU Office of CHE, to include civilian and military manpower, from the total of savings generated by the elimination of travel, per diem and significant commercial registration expenses (\$5,636,799 - \$866,857 = \$4,769,942).

SUPPORT FOR OTHER FEDERAL ORGANIZATIONS

National Aeronautics and Space Administration (NASA) Teleconference Continuing Education Series. Another example of service to other Federal agencies was the sponsorship with NASA of the two series on *Application of Satellite Sensors and Geographic Information Systems for Diseases Monitoring* and *Bioterrorism*. Video-teleconferencing systems connected live seminars to: the Institute for Biomedical Problems located in Moscow; the Institute of Telemedicine in Toulouse, France; the Medical Informatics Center at the Medical College of Virginia; the Robert Byrd Health Sciences Center at West Virginia University; the USU campus; and, the 14 NASA Centers. These seminars are part of the continuing initiative of the NASA Office of Life and Microgravity Sciences and Applications to provide continuing education for the NASA employees and contractors and to promote international understanding and interactions among the international Space Station Project Partners. USU has provided CME, CNE, and ACHE continuing education support for the NASA seminar series since 1998.

MILITARY TRAINING NETWORK

Mission. The mission of the Military Training Network (MTN) is to develop and implement policy guidance and ensure compliance with curricular and administrative standards for resuscitative and trauma medicine training programs for the Uniformed Services and Department of Defense (DoD) affiliates. The MTN supports medical readiness through continuing health professional resuscitative and trauma education for service members world-wide. The TriService MTN staff provides service-specific expertise, central record keeping, and worldwide coordination of training programs.

Background. The MTN was established in 1982 by the DoD Health Council for the purpose of training, registration, coordination, and centralized record keeping for resuscitative medicine programs. The MTN falls under the purview of USU, and is organized under the Senior Executive Director, USU Office of Continuing Education for Health Professionals.

The MTN has been recognized as an American Heart Association (AHA) Regional Training Center since 1984 and as the American College of Surgeons (ACS) Region 13 Program Coordinator since 1996. Over the past seven years, more than one million service members have attended MTN training programs.

The MTN is billeted and resourced equally by the Surgeons General of the United States Army, Navy, and Air Force. The operation of the MTN would not be possible without the additional resources provided by the University.

Strategic Goals. The MTN has identified seven goals for its strategic focus:

Promote quality training programs to ensure optimal Medical Readiness for the Department of Defense;

Quantify MTN affiliated Training Sites' compliance with American Heart Association Guidelines through site visits and record audits;

Provide top-notch customer service;

Enhance operational processes by upgrading automation systems and on-line resources;

Preserve fair cost structures from vendors and international/national organizations that support MTN training sites;

Promote the benefits of MTN affiliation to eligible DoD units including the Reserves and the National Guard; and,

Incorporate Department of Defense Education Activity faculty and staff into the MTN training programs.

Worldwide Capabilities Essential to Medical Readiness. The American Heart Association and the American College of Surgeons recognize the USU MTN as a Regional Training Center/Region Program Coordinator through written agreements. The resuscitative and trauma medicine training programs administered by the MTN include: Advanced Cardiac Life Support (ACLS); Advanced Trauma Life Support (ATLS); Pediatric Advanced Life Support (PALS); and, Basic Life Support (BLS). During the past year, MTN held 834 continuing medical education credited courses; these courses, along with BLS, trained 205,709 DoD personnel, to include over 25,000 physicians.

As an AHA Training Center and ACS Program Coordinator, the USU MTN provides transportable, worldwide training reciprocity for service members. In addition, the MTN structure provides training in strategically critical areas throughout the world (i.e., Bosnia, Korea, and Turkey), on operational platforms (i.e., aboard aircraft carriers), and at remote sites where civilian training would not be available. These capabilities are essential to military medical readiness. **The USU MTN is the only American Heart Association affiliate with worldwide reciprocity for its health care providers.**

MTN Generates Estimated Savings for DoD - \$11,372,044. Department of Defense sites affiliated with the MTN are approved to conduct self-sustained resuscitative and trauma medicine training. This continues to prove cost-effective for the Military Health System because it eliminates the need to pay premium training costs for civilian resuscitative and trauma medicine programs. For example, during Fiscal Year 2003, 205,709 defense personnel were trained through the USU MTN. The average commercial cost for providing this training is conservatively estimated at \$12,222,323. The cost avoidance generated for the DoD during 2003, an estimated total of \$11,372,044, was calculated by subtracting all of the operating costs, to include civilian and military manpower provided by the three Services, from the average commercial cost (\$12,222,323 - \$850,279 = \$11,372,044).

DOD CENTER FOR EDUCATION AND RESEARCH IN PATIENT SAFETY

Establishment. In the Summer of 2003, the Department of Defense (DoD) Center for Education and Research in Patient Safety (CERPS) was established at USU within the Continuing Education for Health Professionals Directorate.

Mission. The DoD Center for Education and Research in Patient Safety engages the Military Health System Patient Safety Program (MHSPSP) educational needs at the undergraduate, post-graduate, and staff levels of health care practitioners. Particular emphasis is placed on the specific patient safety education and research needs of MHSPSP beneficiaries, command, and administrative staff.

VII. THE ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE

I want to thank you personally for the help we at CIA have received from AFRRI. CIA has been committed to ensuring the safety of our mail and AFRRI has been absolutely essential in our efforts. The assessment of the effectiveness of our mail treatment processes would be impossible without your help. *(Prior to September 11, 2001, and the distribution of anthrax through several United States Post Offices, AFRRI researchers had studied the effects of irradiation on biological agents and had established a standard dosage of radiation necessary to eradicate anthrax spores. The researchers used a harmless surrogate spore that mimics the biological properties of live anthrax spores. This non-toxic spore can easily be placed in an envelope, and then tested after irradiation procedures at a specific mailing distribution area; the spore allows extensive testing for quality assurance to ensure the safety of those individuals who will handle the mail. Since September 11th, through 2003, AFRRI scientists have provided relevant information and on-going briefings to numerous entities such as the White House Medical Unit, the House Science Committee, Senate and House professional staff, the Department of Homeland Security, the Centers for Disease Control, the Armed Forces Institute of Pathology, the General Accounting Office, and the Federal Bureau of Investigation.)* **Specifically, I want to point out the following individuals for their superb effort: Gregory Knudson, Ph.D.; Mike Shoemaker, Ph.D.; and, Thomas Elliott, Ph.D. They have been most gracious and accommodating to our needs at the CIA. Without the help of these individuals, we at CIA would not have been able to achieve our goals as quickly. It has been and will continue to be a pleasure to work with these individuals.**

- **Dr. Brian Hollibush, Environmental Health and Preventive Medicine Officer, Central Intelligence Agency, Letter to Colonel Robert Eng, Director, AFRRI, dated May 8, 2002.**

RELEVANCE

Background. The Armed Forces Radiobiology Research Institute (AFRRI), a TriService organization, is located in a 173,242 square foot complex on the campus of the National Naval Medical Center (NNMC) in Bethesda, Maryland. AFRRI was chartered in 1961, to conduct relevant applied radiobiological research in support of the military medical mission and to support accidental or premeditated events involving nuclear weapons, nuclear reactors, radiological dispersal devices, and other nuclear/radiological situations. The AFRRI complex houses a 1 Megawatt TRIGA nuclear reactor, a cobalt-60 irradiation facility licensed for up to 400,000 Curies, a 54 Mev linear accelerator, a 100 Curie cobalt-60 chronic irradiation facility, a full-service veterinary facility accredited by the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC) International, and a full complement of laboratory and administrative spaces. Particularly unique features of the TRIGA nuclear reactor are its ability to simulate the high prompt doses of gamma and neutron radiation from the detonation of a nuclear weapon and its two exposure rooms that can accommodate experimental

work involving large-animal models and other large irradiation studies. Human resources consist of 160 professional, technical, and administrative personnel. About 60 percent are civilian; and, 40 percent are military personnel.

Governance. On September 22, 1992, the Deputy Secretary of Defense approved a program decision memorandum and transferred the management of AFRRI from the Defense Nuclear Agency (DNA) to USU; the Director of AFRRI reports directly to the President of USU. An Administrative Plan for program execution and administrative support for the integration of AFRRI as an Institute within USU was coordinated by the USU Vice President for Administration and Management and the Director of AFRRI; the USU President approved the plan in October of 2000. The Office of the Director, Defense Research and Engineering (DDR&E) directly funded AFRRI's programs and provided management oversight of its research programs through the Director, Bio Systems.

On August 17, 2000, DDR&E suggested that USU revise its DoD Directive 5105.45 to reflect the placement of AFRRI within USU. That suggestion was followed and on November 13, 2000, the USU President approved a draft revision of the USU Directive as coordinated by the USU Vice President for Administration and Management and the Director of AFRRI, with the executive staff of both USU and AFRRI. Upon further guidance from the Office of the Secretary of Defense (OSD), the submission of the draft DoD Directive for OSD approval was postponed pending the reprogramming of funding lines.

In January of 2002, the OSD Comptroller approved Program Budget Decision (PBD) 203C that was to transfer funding and management responsibility for the AFRRI programs to the National Institutes of Health (NIH); AFRRI was to remain a DoD asset and NIH was to continue funding its programs on a reimbursable basis. The USU President, the Director of AFRRI, and other senior representatives of USU and AFRRI began a coordination effort with the Acting Director of NIH to develop plans for: 1) the implementation of a reimbursement process between NIH and DoD for the AFRRI programs; and, 2) the establishment of a program management strategy for AFRRI under a memorandum of understanding between DoD and NIH. Before this coordination process was completed, the transfer of AFRRI funding to NIH was disapproved during the Health and Human Services' Fiscal Year 2003 Appropriations process. As a result, in November of 2002, PBD 630, *Congressional Adjustments to Investment Appropriations*, was issued placing funding authority for the AFRRI programs back with the DoD. At that time, it was too late in the DoD appropriations process to restore funding for AFRRI in Fiscal Year 2003. Thus, funding for the AFRRI programs during Fiscal Year 2003 required Prior Approval Reprogramming Authority; and, AFRRI was funded at its previously programmed amount. During Fiscal Year 2004, AFRRI funding was placed in the Defense Health Program by DDR&E and transferred to AFRRI through USU.

In February of 2004, the USU Office of the General Counsel was delegated by the USU President to finalize the coordination process for revising the University's DoD Directive 5105.45 to include AFRRI (final coordination to include the USU Board of Regents, the USU Executive Committee, the current AFRRI Board of Governors, the Navy Bureau of Medicine and Surgery, relevant offices in OSD, and others, as appropriate).

Mission. AFRRI must 1) conduct applied radiobiological research to develop militarily relevant medical countermeasures against radiation injuries; 2) maintain a Medical Radiobiology Advisory Team to support accidental or premeditated events involving nuclear weapons, nuclear reactors, radiological dispersal devices, and other nuclear/radiological situations; 3) advise the Joint Chiefs of Staff (J-4 Medical); the Deputy Assistant to the Secretary of Defense, Nuclear Matters; the Joint Forces Command; and, the Surgeons reporting to the Combatant Commanders on medical nuclear defense; and, 4) train DoD medical personnel on the management and treatment of radiation casualties (Medical Effects of Ionizing Radiation [MEIR] Course).

A Unique Program. There is no other comprehensive, militarily relevant radiobiological research program like that at AFRRI. While several initiatives exist in universities and private industry to develop pharmacologic strategies to prevent collateral tissue damage in radiation therapy patients, no other program exists to address the spectrum of radiological injuries anticipated under combat situations involving the use of nuclear or radiological weapons. AFRRI does, however, leverage findings from private sector initiatives to develop countermeasures not only to prevent injuries but also to treat and assess radiological injuries under military operational scenarios. ***Only AFRRI offers a program dedicated to these special military requirements. And, no other program within the Department of Defense addresses medical radiological defense research requirements.***

The AFRRI complex was designed and built to conduct radiobiology research and to develop medical radiological countermeasures in support of the military medical mission. The TRIGA nuclear reactor provides an ideal source to simulate the prompt radiation pulse from a nuclear weapon. Although there are 49 of these small research reactors in the world, and 18 in the United States, ***only the AFRRI reactor is designed for, and is wholly dedicated to, applied medical radiobiology research for medical readiness.*** The AFRRI's second major source is a cobalt-60 irradiation facility. It is designed to safely hold up to 500,000 Curies of cobalt-60, but is currently licensed for 400,000 Curies. Because this source can produce a high exposure rate with monoenergetic gamma-rays, it is ideally suited for the high-energy photons needed in applied military radiobiology research. A separate cobalt-60 irradiation facility is also housed at AFRRI to provide a source of low-dose-rate gamma photon emissions to conduct radiobiology experiments simulating chronic exposure to low dose radiation sources.

Documented Relevance. Since the terrorist attacks of September 11, 2001, it has become apparent that the risk of deliberate attacks involving the use of radiological or nuclear devices is on the rise. A growing threat exists from small-scale conflicts, terrorist incidents, accidents, and even peacekeeping missions in troubled areas around the world. Each of these scenarios involves real prospects for the use of nuclear or radiological devices, or the uncontrolled or intentional release of hazardous radioactive materials, posing a challenge on the battlefield and to homeland security. Unlike a strategic nuclear exchange, which would devastate infrastructure and all but eliminate prospects for the delivery of any remaining health care resources, casualties of nuclear/radiological incidents in today's threat environments will expect to have quick access to sophisticated medical care. It is essential to ensure that the best possible products of today's technology are available to the personnel of the health care delivery systems who must respond to such disaster scenarios. The military has a clear need for information on the sources and complicating effects of radiation during wartime, terrorist and accident scenarios.

Military planning, deployment and employment decisions in response to nuclear/radiological incidents depend on information available only from test (i.e., experimental), theoretical and/or empirical (event-generated) data. The AFRRI has played a significant role in providing information to devise strategies for early response to high, acute doses of radiation. In addition, ...”**Needs have changed in response to the contemporary world’s environment; low-dose, chronic exposures are more likely to occur. There is a growing concern to define accurately the consequences of a variety of such scenarios.... They (AFRRI) demonstrated dedication to, and focus on, the real and current need for information to deal with risk situations already being encountered, or likely to be encountered, by Armed Services Personnel. It was made clear that changing world conditions have posed new threats for which there are little or no data. The need for new data comes at a time when the scientific community’s ability to respond has been severely restricted by worldwide closings of radiobiological research centers. AFRRI has value because it is designed and organized to generate these types of data, and because it is one of the very few places that can do so”** (American Institute for Biological Sciences (AIBS) Peer Review on AFRRI, Executive Summary, dated July 1996, pages 1 and 2).

Response Agreements with the Office of the Secretary of Defense Confirm AFRRI’s Relevance to DoD. The AFRRI’s provision of direct support to the Office of the Secretary of Defense (OSD) and the Joint Chiefs of Staff (JCS) validates its mission relevance and its value to national defense. Upon request during emergency situations, AFRRI deploys teams of technical and scientific experts as consultants to these offices within a three-hour response time.

March 2001 Technology Area Review and Assessment. The biennial Technology Area Review and Assessment (TARA), held during the week of February 26, 2001, in San Antonio, Texas, noted that advances in medical science and technology indeed portend the prospects that “radiation-induced injuries can be managed” and that major elements of AFRRI’s program are “focused on an important problem, with potential impact on homeland defense.” No changes were made to these findings during the last TARA conducted in March of 2003.

In summary, the DoD’s annual funding of the Medical Radiological Defense Research Program at the Armed Forces Radiobiology Research Institute is a timely investment, which supports relevant medical requirements of the Services. A value-added benefit to DoD and national security is derived from AFRRI’s pool of scientific and technical experts in government service, who are available on short notice to provide advice and guidance to high-level offices within DoD, during national emergencies. The AFRRI is poised to continue paying dividends well into the future by ensuring an enhanced medical readiness posture that will save lives and reduce injuries in nuclear/radiological and combined nuclear/biological/chemical (NBC) threat environments.

TIMELINESS

Doctor Marburger, President Bush's Science Advisor, sent a six-person team, including two AFRRI scientists to the Lima, Ohio plant to evaluate the mail irradiation facility and process. AFRRI scientists, working with National Institutes of Standards and Technology personnel, assembled a container of mail with dosimeters and surrogate spores, took it to Lima, had it irradiated as a quality assessment check, and briefed Doctor Marburger on the results, which found no growth spores at the radiation dose recommended by AFRRI. Dr. Marburger will later brief several government agencies, including the Office of Homeland Defense, at the White House on the results.

- Weekly Activities Report, *Uniformed Services University*, Health Affairs, Office of the Secretary of Defense, November 5-9, 2001.

An Impressive Response. AFRRI routinely disseminates its research findings with the scientific community, within DoD, the private sector, and internationally. Its investigators' publications in peer-reviewed journals, presentations at professional conferences, and reports and recommendations to the TriServices and the Surgeons of the Combatant Commands provide timely information on the mitigation of radiation hazards and optimization of medical treatment strategies for radiation casualties. Research findings are also integrated into the AFRRI-sponsored accredited course on the Medical Effects of Ionizing Radiation (MEIR), the premier high level training medium available to the medical personnel of the Armed Forces for the management of radiological injuries. Attendance and presentations at national and international conferences ensures that AFRRI investigators stay abreast of the latest developments around the world. It provides an important source of critical feedback through direct peer interaction; and, it fosters recruitment of other scientists to contribute independently to solving problems in radiobiology common to both the military and private sectors. Past studies focused primarily on high radiation doses, because the military was then concerned with the high prompt dose effects from nuclear weapons detonations. Today, ... **"the AFRRI investigators have been able to use this knowledge, and the experimental approaches which allowed its development, to design reasonable and logical approaches to the extremely difficult problems of current interest that (in addition to on-going nuclear threats from terrorist activities) involve low doses and possible low dose rates.... AFRRI has always played a national and international role in solving radiobiological problems, interacting with NATO, sending response teams anywhere in the world where they are needed, and training physicians and military personnel to respond to radiation accidents. This role is expanding due to the default of other centers. Key to the ability to uphold this responsibility, and a major strength, is the combination of dedicated radiation sources, animal facilities, and the mixture of military and civilian personnel with expertise in many relevant fields. This allows a think tank approach to experimental design, rapid execution of experiments, and frugal use of resources, including experimental animals"** (AIBS Peer Review on AFRRI, dated July of 1996, page 2).

AFRRI Fields Medical Training and Provides Rapid Response in Support of DoD Missions.

Support to the National Pharmaceutical Stockpile Program - May 2003. An AFRRI physician serves as the co-chair of a joint Centers for Disease Control and Prevention/Department of Defense working group that is chartered to identify pharmaceutical agents for incorporation into the Nation's strategic stockpile to be available for emergency use in the event of nuclear or radiological disasters.

The AFRRI participated in a Radiological/Nuclear Threat Countermeasures Working Group, initiated in May of 2003. The Working Group was co-chaired by the Director of AFRRI and the AFRRI Scientific Director, with the participation of other AFRRI scientists. The Working Group was asked to: 1) define national requirements for therapeutics/protectants and diagnostics; 2) develop acquisition plans for the Strategic National Stockpile purchase of therapeutics/protectants and diagnostics; and, 3) develop a coherent radiological/nuclear threat countermeasures research and development agenda. The working group consisted of representatives from a broad range of Federal agencies and included a few key individuals from the private sector. Some of the agencies represented included: Health and Human Services; the Department of Defense; multiple representatives from the National Institutes of Health; the Centers for Disease Control; the Food and Drug Administration; the Department of Homeland Security (Strategic National Stockpile); the Department of Veterans Affairs; the National Aeronautics and Space Administration; and, the Department of Energy.

Support Provided to the Interagency Working Group on Test Methods and Surrogates for *Bacillus anthracis* - October 9-10, 2002. Senior AFRRI investigators were key participants by invitation for an October 9-10, 2002 Interagency Workshop sponsored by the Environmental Protection Agency (EPA). The workshop's goals were to identify the best non-harmful surrogate bacterial organisms to mimic the biological characteristics of *B. anthracis*, the bacterial agent of anthrax, and to establish collaborative research activities needed to assist the EPA in developing scientifically-based guidance on test methods and performance standards for the inactivation of *B. anthracis* spores. Other noted agencies participating in the workshop included the Centers for Disease Control and Prevention, the Defense Threat Reduction Agency, the Naval Surface Warfare Center, the Department of State, the Department of Energy, the National Institutes of Health, the National Institute of Standards and Technology, the Department of Justice, the Federal Drug Administration, the Lawrence Livermore National Laboratory, the Argon National Laboratory, the Department of Homeland Security, the University of Ottawa, and the Dugway Proving Ground.

Support to the European Union on Medical Preparedness for Nuclear/Radiological Events - 2002. As a result of AFRRI's participation in NATO's Research Technology Agency and its research and development programs for radiation medical defense, AFRRI was invited to participate in the European Union (EU) initiative entitled, *Medical Preparedness for Nuclear/Radiological Events*. The recently formed EBMT Nuclear Accident Subcommittee has three objectives: 1) conduct assessments of EU medical resources to effectively manage radiation-associated mass casualties; 2) provide guidance to EU members concerning current capacities and the requirements for extended capacities; and, 3) develop a robust network of cooperating EU medical facilities and trained personnel in order to better deal with future nuclear/radiological contingencies.

Support to the Centers for Disease Control and Prevention - July 18, 2002. On July 18, 2002, AFRRI staff provided senior representatives of the Centers for Disease Control and Prevention (CDC) with presentations covering the threats posed by radiological dispersal devices, surreptitious planting of radiation sources, improvised nuclear weapons, and sabotage of nuclear power reactors. The presentations included discussions on the appropriate use of potassium iodide to mitigate risks of thyroid cancer from exposure to radioactive iodine and an overview of AFRRI's role in emergency response, medical training, and research and development.

Support to the Combatant Commander, United States Southern Command, and the Department of State - March 14, 2002. On January 30, 2002, members of AFRRI's MRAT provided a briefing to the Acting Combatant Commander, United States Southern Command (USSOUTHCOM), and six other flag officers and representatives from the United States Department of State on the medical and psychological consequences of a radiological dispersal device (RDD) detonation in a foreign country. The DoD, in conjunction with the State Department, is using the information to develop emergency response plans for personnel assigned to United States embassies located around the world. On March 14, 2002, AFRRI personnel participated with the State Department in an exercise simulating the detonation of an RDD in a foreign embassy. The goal of the exercise was to educate participants on the threats and procedures for providing prompt medical assessment, triage and treatment. The AFRRI continues to provide medical and health physics support to the Department of State by serving on its Weapons of Mass Destruction (WMD) Incident Planning and Coordination Committee and its WMD Response Operations Control Group.

Support to the President's Science Advisor and Office of Science and Technology Policy - March 12, 2002. On March 12, 2002, the AFRRI Director and the head of AFRRI's Military Medical Operations Department briefed the Radiological, Nuclear and Conventional Threats Detection and Response R&D Working Group of the Office of Science and Technology Policy (OSTP) on the capabilities of AFRRI's Medical Radiological Advisory Team.

Training for National Guard Civil Support Teams - March 2002. A Presidential Directive following the incidents of September 11, 2001, established National Guard Civil Support Teams to provide State Governors with cadres of first responders specifically trained and equipped to deal with terrorist incidents involving chemical, biological, radiological, nuclear or explosive (CBRNE) incidents. In March of 2002, AFRRI's Medical Radiological Advisory Team (MRAT) hosted a two-week conference to train personnel assigned as first responders to the newly established civil support teams. The training included lectures on operational health physics, Federal/DoD regulations, risk analysis, radiological instrumentation, DoD and non-DoD radiological assets, and design characteristics of nuclear power plants, radiological dispersal devices and nuclear weapons. Learning objectives focused on decision-making during the crucial first 12 hours following a nuclear/radiological event. The conference was highly successful. As a consequence, the National Guard Bureau of Washington, D.C., has requested the AFRRI MRAT to provide training on an annual basis.

Support to the Vice President of the United States - February 7, 2002. On February 7, 2002, the AFRRRI Director and other AFRRRI staff briefed the Vice President's Senior Advisor for Medicine and Public Health and the Senior Advisor for Biodefense on the medical consequences of terrorist use of improvised nuclear weapons and radiological dispersal devices.

Support to United States Forces Command - February 12, 2002. On February 12, 2002, the AFRRRI Director briefed the principal flag officer staff and Command Surgeon of the United States Forces Command (USFORSCOM) on the radiological risks from potential attacks on, sabotage of, or accidents involving nuclear power plants in areas of operation. The briefing included a review of the Food and Drug Administration (FDA) and DoD policies on the stockpiling and use of potassium iodide for the emergency treatment of personnel exposed to radioactive iodine, which can be released during events involving nuclear power reactors.

Support to the President of the United States - November 19, 2001. On November 19, 2001, members of AFRRRI's Military Medical Operations Department spent the morning at the White House training the President's medical unit personnel on the medical effects of ionizing radiation and the latest preventive, assessment and treatment measures that can be applied to mitigate radiation-induced injury.

Medical Radiobiology Advisory Team - February 2001. The AFRRRI Medical Radiobiology Advisory Team (MRAT) provides medical and health physics consultation and dose assessment capabilities to the United States military and private sectors around the world for contending with a broad spectrum of nuclear or radiological accidents, incidents, or injuries. For example, the team was on full alert after the terrorist attacks at the World Trade Center and at the Pentagon and during the most recent crisis between India and Pakistan. The AFRRRI MRAT is a critical arm of the Defense Consequence Management Advisory Team, fielded by the Defense Threat Reduction Agency, and is called upon to deploy worldwide in response to incidents involving nuclear weapons, radiological devices, or nuclear power reactor emergencies (i.e., an article in U.S. News and World Report, during February of 2001, illustrated an example of the heightened risk for a radiological event by citing the prospects for nuclear accidents at several locations across the former Soviet Union).

Support to the Secretary of Defense - January 10, 2001. On January 10, 2001, AFRRRI provided the Office of the Secretary of Defense with the most current scientific information on the human bioeffects of depleted uranium resulting from various sources of exposure (dermal, inhalation and wounding). The information was used later that day by the Secretary of Defense to address the National Press Club on European concerns over DU exposures among NATO forces in the Balkans.

Response to a Request from the German Ministry of Defense - January 8, 2001. The upheaval within the NATO alliance, stemming from claims by some allied forces and their governments that depleted uranium (DU) exposures during their operations in the Balkans were the cause of serious personal illness, prompted the German Ministry of Defense to seek AFRRRI's support in dispelling such claims. The request recognized AFRRRI's worldwide leadership role and scientific expertise in studies on

the health effects of chronic exposures to DU. Through AFRRI's capacity as Chair of Technical Group-006 of the NATO Human Factors and Medicine Panel, information was provided that greatly helped to defuse the crisis.

Capability to Assist in the Accident of the Russian Submarine Kursk - August 14, 2000. During the aftermath of the Russian submarine accident, AFRRI was asked by the Defense Threat Reduction Agency for medical capabilities that could have been offered to the Russians in anticipation of an official Russian request. AFRRI immediately responded with radiation biodosimetry support to assess the radiation dose to the surviving Russian sailors.

Response to the Tokaimura Nuclear Criticality Accident in Japan - October 2, 1999. AFRRI was in consultation with Dr. Haraguichi at the Tokaimura Prefecture Emergency Operations Center addressing his questions on public health and methods to mitigate the adverse radiophobia and psychological effects of the nuclear incident on the public. AFRRI also provided guidance to the United States Army Japan on measures to reassure the United States military members and their families that they were not in harm's way, to include the monitoring of food sources for the United States community.

SCIENTIFIC MERIT

Internal and External Review Mechanisms Ensure Standards of Scientific Excellence. The USU and AFRRI have implemented internal and external review mechanisms for the systematic planning, review and analysis of AFRRI's programs to ensure the highest standards of scientific excellence.

Program Management. The AFRRI management has established a management system to provide clear guidance to investigators and ensure oversight of all funded work. The system provides a road map for achieving the overarching objectives of the two appropriated funding lines for *Medical Technology* and *Medical Advanced Technology* in the area of radiobiology research. It serves as the basis for the planning, funding, review, and analysis of all work; and, it ensures that resources are appropriately allocated so that programmatically relevant goals are achieved within specified timeframes and clearly defined metrics of acceptability.

Program Areas. The AFRRI Director and the AFRRI Scientific Director jointly define *Program Areas* that are the major programmatic thrusts for addressing military requirements relevant to AFRRI. A Team Leader heads each *Program Area*, providing scientific leadership and coordination of the component scientific investigations (*projects*).

Projects. *Projects* are the basic work unit of research. Each *project* is described in a detailed written protocol that conveys the study's specific aims, hypothesis, approach, program relevance, milestones, accomplishments, and assessment of resource requirements. Each protocol is reviewed and approved annually by the Scientific Director of AFRRI; recommendations for funding are forwarded to the AFRRI Director before work is initiated. Each *project* lasts up to three years, at which time, a new protocol can be written to continue the line of work, if warranted. An external panel of subject matter experts is convened annually to review all new protocols.

Quality Assurance. To ensure the quality of the research programs at AFRRI, a three-part process has been implemented to regularly evaluate the scientific efforts, military relevance, and management oversight/procedures. The quality assurance process for all AFRRI research projects includes: 1) an annual internal assessment of direction, progress, and scientific plans; 2) external peer review by a panel of subject matter experts for all new protocols; and, 3) periodic broad programmatic reviews for scientific merit and program relevance. In addition, steering committees of experts from outside of AFRRI have been established for those projects where more frequent review and advice is deemed appropriate.

Annual Internal Reviews. All on-going research projects are formally reviewed each year by AFRRI management. Investigators must submit written summaries of their progress on approved protocols. These annual progress reports provide the opportunity for critical assessment of the goals attained; and, if necessary, reevaluation of the project's direction. This internal review process provides

program managers, the Scientific Director, and the AFRRI Director with assurances that projects are on course and properly resourced.

External Peer Review. All new research projects are subject to a rigorous peer review by subject matter experts. Investigators must write detailed protocols for up to three years of effort. A peer review panel convenes annually to discuss the scientific merit of the new projects. This external review process ensures that the research is scientifically sound and provides investigators with valuable suggestions for new approaches and directions. The last review of selected protocols occurred during the Fall of 2003.

Comprehensive Program Reviews. Biennially, the Biomedical Defense Science and Technology Reliance Panel, under the auspices of the Armed Services Biomedical Research Evaluation Management (ASBREM) Committee, evaluates the military relevance and scientific merit of AFRRI's research programs through the Technology Area Review and Assessment process (TARA). The most recent TARA was held in March of 2003. In addition, an independent review by the American Institute for Biological Sciences (AIBS) is conducted periodically. The AIBS program assessment focuses primarily on scientific review and analysis; and, it also considers how effectively AFRRI/USU management executes the planning and funding processes.

Department of Radiation Biology, School of Medicine. A new academic Department of Radiation Biology, within the USU School of Medicine (SOM), will be established during the coming year, resources permitting. The SOM Department of Radiation Biology will have a basic research foundation oriented to support the Medical Radiological Defense Research Program mission of AFRRI. The Department will offer courses in the medical effects of ionizing radiation and, as resources permit, will establish a degree granting program for radiobiology. The AFRRI Scientific Director will serve as the Chair of the new Department of Radiation Biology and, in this capacity, report directly to the Dean of the School of Medicine.

The Quality of AFRRI's Science Measures Well Against National Scientific Capabilities and Standards for Technical Merit.

Technology Area Review and Assessment. The Technology Area Review and Assessment (TARA) panel of March 2001 noted that AFRRI's research thrusts are characterized by *quality, hypothesis-driven science* and that major elements of the program employ *novel methodology* and *logical approach* in executing studies that have the *potential for significant impact on treatment decisions*. The TARA panel also noted that the productivity of AFRRI's science is reflected in its record of peer-reviewed publications and other printed materials. (A Summary of AFRRI Publications for 1999-2003 is provided at Appendix C.)

The most recent TARA was held in March of 2003. The review panel found no serious concerns and during a briefing to the Defense Science and Technology Advisory Group (DSTAG) on the TARA outcome for AFRRI, the following comments were conveyed: *1) Significant increase in speed and accessibility of methodology for geographic sampling of populations following a radiological incident; and, 2) Well structured studies; good linkage to transition partner.*

AFRRI's Research Programs Are Globally Recognized. The AFRRI research programs are highly regarded throughout the scientific and medical communities, both nationally and internationally. The following selected accounts of recent activities and engagements testify to this fact:

NATO Human Factors and Medicine Panel Symposium. An AFRRI senior scientist was invited to speak at the NATO Human Factors and Medicine Panel Symposium entitled, *NATO Surveillance and Response: Research & Technology Opportunities and Options*. The symposium was scheduled to take place on April 19-21, 2004, in Budapest, Hungary;

International Atomic Energy Agency Working Group. AFRRI scientists are invited members of the International Atomic Energy Agency's (IAEA) Working Group tasked to review and update the agency's Biodosimetry Manual (IAEA Report No. 260). This manual serves as the current basis for the standardization of cytogenetic-based assays for radiation dose assessment. *The updated manual, released in 2001, includes, for the first time, reference to the premature chromosome condensation assay pioneered and published by the AFRRI Biodosimetry Team.* In addition, during November of 2002, the IAEA invited two AFRRI staff members to review and contribute to the updating of official guidance on *Generic Procedures for Medical Response during Nuclear and Radiological Emergency*. Coordination with the IAEA has been ongoing; draft #12 of an updated biodosimetry manual was under review as of April 2004;

NATO Research Task Group 006 for Radiation Injury and Medical Countermeasures. AFRRI's Radiation Casualty Management Team Leader held the Chair of the NATO Research Task Group 006 for Radiation Injury and Medical Countermeasures. This task group fell under the Human Factors and Medicine Panel of NATO and its membership included radiobiology experts from 13 NATO countries,

with Australia as an observer nation; the AFRRRI Biodosimetry Team Leader was requested to Chair the follow-on NATO Research Task Group 033 and to carry forward the work of Task Group 006 during 2004;

International Standards Organization. Upon invitation, another AFRRRI senior scientist serves as the United States Representative to the International Standards Organization (ISO) Working Group #18, which was convened during 2002, to develop performance standards for specialized laboratories performing radiation dose assessments using cytogenetic procedures. Working Group #18 produced standards for a cytogenetic reference assay that were ratified by the ISO in 2002. The working group continued the initiative to develop reference standards for a rapid TRIAGE-based cytogenetic assay, throughout 2003 to the present;

National Institute of Allergy and Infectious Diseases. In the Fall of 2003, under an interagency agreement between AFRRRI and the National Institute of Allergy and Infectious Diseases (NIAID) to establish a cooperative relationship, NIAID committed to provide AFRRRI with funding to support several studies of mutual interest on the development of medical radiological countermeasures during Fiscal Year 2004;

The National Council on Radiation Protection and Measurements. In 2003, the National Council on Radiation Protection and Measurements (NCRP) elected an AFRRRI senior scientist to serve a four-year term on the Council. This AFRRRI scientist was also appointed as the Chair of the Program Committee for the Annual Scientific Meeting of the NCRP in 2004;

Department of Homeland Security. In 2003, an AFRRRI-developed software application for use to support medical recording following a radiation accident, ***The Biodosimetry Assessment Tool***, was recommended for use during a CDC webcast and in a document prepared by the Department of Homeland Security Working Group on Radiological Dispersal Device Preparedness;

University Technology Development Fund. During 2003, an AFRRRI Principal Investigator and three USU Co-Investigators secured a grant from the Maryland Technology Development Corporation's University Technology Development Fund (UTDF) to advance their studies in developing protective strategies against damage to normal tissues during radiation therapy for prostate cancer. The UTDF recognizes university researchers throughout Maryland for their potential contributions to their fields of study and to the economic vitality of the State. ***This award is a first for USU.*** A member of the Radiation Casualty Management Team is the Principal Investigator on the grant;

The World Space Congress. An AFRRRI senior scientist was invited to present an abstract entitled, *Radiation Biodosimetry: Applications for Space Flight*, at The World Space Congress 2002/34th Committee on Space Research Scientific Assembly in Houston, Texas; a full manuscript of the abstract was published in Advances in Space Research, during 2003;

National Cancer Institute. In December of 2001, AFRRI scientists participated in organizing and conducting an interdisciplinary workshop sponsored by the National Cancer Institute to address scientific progress in molecular, cellular and whole animal radiobiology and biodosimetry, and the impact on current and future treatments to prevent or ameliorate radiation damage to normal tissues. A report of the meeting entitled, *Molecular and Cellular Biology of Moderate Dose Radiation and Potential Mechanisms of Protection*, appeared in Radiation Research, Volume 159, pages 812-834, during 2003;

Presidential Office of Science and Technology Policy. The Director of AFRRI and the AFRRI Scientific Director served as Co-Chairs on a Federal-level working group under the direction of the President's Office of Science and Technology Policy to assess radiological/nuclear threat countermeasures during 2003. A product of the working group included a prioritized listing of necessary research to provide medical radiological defense. An AFRRI senior scientist Co-Chaired the Biodosimetry Subgroup to the Working Group;

National Disaster Medical System Conference. An AFRRI senior scientist was an invited speaker on *Biodosimetry Options for Clinicians Responding to a Mass Radiation Casualty Event* at the 2003 National Disaster Medical System Conference held in Reno, Nevada;

Sixth Annual Force Health Protection Conference. Three AFRRI scientists were invited speakers at the 6th Annual Force Health Protection Conference held in Albuquerque, New Mexico, in August of 2003;

International Congress of Radiation Research. Two senior scientist from AFRRI were invited speakers in a special session of the International Congress of Radiation Research entitled, *Bio-terrorism and Radiation, What to Do? What Research Is Needed?* The special session was held in Brisbane, Australia, in August of 2003;

The Health Physics Society. Two AFRRI scientists were invited speakers at the 2003 Topical Meeting of the Health Physics Society, in a Session entitled, *Biophysical and Biological Techniques for Retrospective Radiation Dosimetry*, held in Houston, Texas, on January 29, 2003;

National Institute of Standards and Technology. Two AFRRI scientists were invited speakers at the 11th Annual Meeting of the Council on Ionizing Radiation Measurements and Standards at the National Institute of Standards and Technology held in October of 2002. The Council provides leadership and dissemination of information on a wide range of topics dealing with ionizing radiation measurements and standards;

Centers for Disease Control. An AFRRI senior scientist served as an invited expert in a Centers for Disease Control (CDC) Roundtable entitled, *The Identification of Emerging Strategies for Hospital Management of Mass Casualties from a Radiological Incident*, held in Atlanta, Georgia, during May of 2002;

International Conference on Low-Level Radiation Injury and Medical Countermeasures.

AFRRI planned, organized and hosted a highly successful International Conference on *Low-Level Radiation Injury and Medical Countermeasures*. Held in November of 1999, the conference attracted over 147 participants and included several of the world's most preeminent radiobiologists. A combined total of 72 oral presentations and posters were given over the course of three days. The proceedings of the conference were published in a special issue of Military Medicine, the International Journal of AMSUS, Supplement to Military Medicine, Volume 167, No 2, in February of 2002;

The European Commission Directorate for General Research and Technical Development.

One of AFRRI's senior scientists was invited to deliver a keynote lecture at the *Advanced Research Workshop on Protracted, Intermittent or Chronic Irradiation: Biological Effects and Mechanisms of Tolerance*. The workshop was an international meeting held at the University of Ulm, in Ulm, Germany, on May 14-17, 2001; it was sponsored by the European Commission Directorate for General Research and Technical Development, the International Searle Foundation, and the University of Ulm;

Department of Energy. An AFRRI senior scientist was an invited speaker at the 4th International Conference on the Medical Basis for Radiation Accident Preparedness sponsored by the Radiation Emergency Assistance Center/Training Site (REAC/TS) of the Department of Energy. The conference was held in March of 2001, and addressed issues and current advances in the management of acutely irradiated or contaminated patients. The AFRRI Biodosimetry Team also organized and hosted a workshop, *Updates on the Current Dose Assessment Techniques: Biological*, in conjunction with the REAC/TS Conference;

International Conference on the Operational Impact of Psychological Casualties from Weapons of Mass Destruction. AFRRI planned, organized, and hosted a highly successful International Conference on the *Operational Impact of Psychological Casualties from Weapons of Mass Destruction* in July of 2000. Keynote speakers included the Principal Deputy Under Secretary of Defense for Personnel and Readiness and the Deputy Assistant to the Secretary of Defense for Chemical and Biological Defense; and,

The National Academy of Sciences and the United Kingdom Ministry of Defense. Members of the AFRRI Depleted Uranium (DU) Team were invited to make formal presentations on AFRRI's DU research findings to the National Academy of Sciences, the Institute of Medicine, the United States Army Heavy Metals Office, the United Kingdom Ministry of Defense, and the Committee on Health Effects Associated with Exposures during the Gulf War (National Academy of Sciences, Washington, D.C.) on June 14, 1999. Information presented by the DU Team was included in the published book summarizing the Committee's findings: Gulf War and Health, Volume 1. Depleted Uranium, Pyridostigmine Bromide, Sarin, Vaccines, (Fulco, C.E., C.T. Liverman, H.C. Sox, eds.), National Academy Press, Washington, D.C., 2000.

TECHNICAL QUALITY

The Transition of New and Improved Medical Technologies. AFRRI's Science and Technology Programs are soon expected to transition new and improved medical technologies into advanced development with Food and Drug Administration (FDA) approval and eventual fielding.

Six Defense Technology Objectives (DTOs) Guide the Thrust of AFRRI's Research. AFRRI's research programs present a strategic commitment that leans heavily toward moving products of basic and developmental research into definitive applied studies of safety and efficacy aimed at transitioning new and improved medical technologies into advanced development, with FDA approval, and eventual fielding.

Since 1998, AFRRI had been assigned four Defense Technology Objectives (DTOs); during 2003, two additional DTOs were assigned to AFRRI. A DTO is a specifically recognized high priority element of technology advancement, which will be developed or demonstrated and has an anticipated delivery date. The product of a DTO is expected not only to enhance military operational capability, but also to address other important issues such as affordability and dual-use application, both of which receive special emphasis in the Defense Science and Technology Strategy.

Each of the following six DTOs supports the Quadrennial Defense Review (QDR) transformation operational goal to Project and Sustain United States Forces:

- ***Pharmacologic Prevention of Ionizing Radiation Injury.*** This DTO will develop advanced medical strategies for the prevention of radiation injuries. Pharmacologic interventions based on 5-androstene steroids (5-androstenediol and analogs), a novel class of radioprotectants, will be designed and tested in preclinical model systems. Results will define the decision point for possible transition to clinical testing of preventive treatments designed to maximize protection of personnel against early arising radiation syndromes (i.e., performance decrement and lethality). Effective mitigation of health consequences and performance-degrading effects will: 1) reduce the casualty load at medical treatment facilities; 2) sustain a more effective operational force after a radiation exposure event; 3) allow commanders to conduct operations in radiation field environments with reduced risk of decremented performance due to acute tissue injury; and, 4) reduce the negative psychological impact on personnel tasked to operate in contaminated environments. Very significant reductions in acute casualty rates are expected based on recent studies;

- ***Cytogenetic-Based Diagnostic Biodosimetry System.*** This DTO will develop a biodosimetry assay system, based on chromosomal aberrations, that permits a rapid, high-throughput capability to assess ionizing radiation exposure for large numbers of casualties. Symptomatology and physical dosimeters, even when available, do not provide adequate diagnostic information to treat life-threatening radiation injuries. The objective assay system will provide physicians with the ability to definitively triage radiation victims, make appropriate treatment decisions, reduce the uncertainties

associated with the variability of individual response to radiation exposure, and discriminate between cases of whole, versus partial, body exposures;

- ***Toxicity of Embedded Depleted Uranium.*** The objective of this DTO is to determine the long-term health effects of exposure to depleted uranium (DU) fragments by characterizing multiple biological indices indicative of carcinogenicity using experimental model systems. Friendly fire incidents during the Gulf War produced DU shrapnel injuries among United States soldiers. The success of this new class of munitions guarantees its large-scale deployment by future adversaries, greatly increasing the number of casualties with DU fragment injuries. Little is known of the health risks from chronic exposure to embedded DU fragments due in part to DU's unique combination of radiological and toxicological properties. Current treatment strategies are in the most basic stage of development, and conventional diagnostic capabilities do not differentiate DU from other shrapnel injuries. This technology effort will define the pathologic consequences of chronic exposure to tissue-embedded DU fragments using generally accepted *in vitro* and *in vivo* experimental systems, and develop rapid assessment tools to identify personnel wounded with DU. Data will provide risk analyzers and managers with the information needed to develop policies addressing the health hazards of DU, and to establish safe and effective treatment strategies to minimize the long-term health risks from DU shrapnel;

- ***Medical Countermeasures Against Bacterial Sepsis after Irradiation.*** This DTO will develop combined treatment modalities against lethal or incapacitating radiation-induced bacterial sepsis. Polymicrobial sepsis is the leading cause of death following acute, whole-body irradiation. Ionizing radiation depresses immunity and damages intestinal epithelium, both of which promote microbial translocation from the intestines and sepsis. Effective medical countermeasures for battlefield-sustained radiation mass casualties will require a radically different approach than what is used to manage patients receiving chemotherapy or fractionated radiation therapy under highly controlled conditions. Appropriate antimicrobial therapy is critical because bacteria develop resistance; use of the inappropriate antimicrobial therapy exacerbates the injury. Therapy must target only the endogenous and exogenous bacteria, both Gram-positive and Gram-negative, causing sepsis and not the beneficial gut microflora including anaerobic bacteria. Use of antimicrobial agents alone does not assure recovery from sepsis in an irradiated neutropenic animal; nonspecific biological response modifiers (BRMs) can improve outcomes by promoting innate resistance to infection. This effort will examine BRMs and antibiotics separately and in combinations in a rodent model to enhance treatment strategies for radiation-induced infections. Findings can be transitioned to preclinical studies to secure an FDA indication for combination therapy for managing bacterial infections in irradiated personnel. Results will allow recommendations for optimal choices for treatment that will enhance survival in military operational environments. Successfully achieving the objective will provide a treatment strategy for radiation-induced bacterial sepsis that: 1) effectively reduces morbidity and mortality; 2) reduces casualty loads at medical treatment facilities; 3) shortens therapeutic intervention and accelerates return to duty; 4) reduces the requirement for prolonged antibiotic therapy, thereby lessening the likelihood of inducing antimicrobial resistance; and, 5) helps to sustain a robust fighting force in nuclear or radiological environments;

- ***Molecular Biomarkers-Based Diagnostic Biodosimetry System.*** This DTO will develop a biodosimetry assay system based on radiation dose-dependent alterations in gene expression and their encoded proteins. The system will measure changes in the relative concentrations of cellular messenger RNA and blood proteins (molecular biomarkers) and will provide for early, forward field-based radiation exposure assessment. Successful efforts will produce the following results: 1) molecular biomarkers can be measured rapidly (within hours) with the same hand-held and field-laboratory analytic systems used to identify biological weapons agents; 2) the assay system will provide the ability to distinguish individuals not exposed, including the worried well, from exposed individuals (>10 cGy) and to determine individual exposure doses before the onset of symptoms to aid decision-making for medical triage; and, 3) assessment of a radiation dose early after exposure enhances the operational commander's situational awareness of the radiation exposure status of deployed forces and increases the prospect of reduced morbidity and mortality through early medical intervention; and,

- ***Prevention of Ionizing Radiation Injury by Isoflavones.*** This DTO will develop advanced medical strategies for the prevention of radiation injuries. Preliminary findings on the isoflavones, genistein and daidzein, demonstrate promising radioprotective efficacy with a single subcutaneous injection or multiple oral doses in a rodent model. The soybean and clover isoflavones, genistein and daidzein, will be evaluated in a preclinical animal model for radiation protection. Results will define the decision point for possible transition to clinical testing of preventive treatments designed to maximize protection of personnel against early arising radiation syndromes that result in mortality. Products of this effort will give the warfighter a level of protection against radiation-induced injury. Desirable characteristics of the products will include: 1) the provision of additional options for radioprotective therapies that can be used alone or in combination with other agents (i.e., 5-AED). Additive or even synergistic effects may be realized with combinations of drugs; 2) increased survivability and decreased morbidity; 3) reduced casualty loads at medical treatment facilities; 4) ability of commanders to conduct operations in radiation field environments with reduced risk; and, 5) reduced psychological impact on personnel tasked to operate in radiation environments.

Four Research Thrusts. There are four major AFRRI research thrusts, each carried out by a team of AFRRI investigators:

The Radiation Casualty Management Team. The Radiation Casualty Management Team investigates the full spectrum of medical countermeasures for an external exposure to ionizing radiation. Drug compounds are under development that can potentially elevate tolerable thresholds of ionizing radiation, leading to injury reduction and saved lives. The team investigates compounds that carry anti-oxidant or DNA damage surveillance and repair stimulating properties, or compounds that impart cell-cycle regulatory activities or immune system-enhancing characteristics that, when combined, provide important radioprotective qualities. The team also develops treatments for life-threatening injuries to the blood forming and gastrointestinal systems and the lungs. ***AFRRI investigators have demonstrated significant radioprotective qualities of a non-androgenic steroid, 5-androstenedial (5-AED). The drug has no measurable toxicity at the doses being used to achieve protection.*** On-going research includes attempts to deliver similar protective efficacy by the oral route of administration and should lead to a product that can be more easily managed logistically and used by deployed military troops. In October of

2001, AFRRI investigators and representatives from its corporate partner presented preliminary data and a research plan for clinical trials of 5-AED at a pre-investigational new drug meeting before the FDA. The plan was favorably received; and, the FDA provided valuable guidance on how to proceed with pre-clinical trials toward an IND application.

During the past 18 months, *the 5-AED Project has progressed considerably and is on track for the submission of a possible investigational new drug (IND) application to the FDA by the end of Calendar Year 2004.* The corporate partner of AFRRI completed two pilot studies in nonhuman primates during 2003, demonstrating efficacy when 5-AED is administered both pre- and immediately post-exposure to gamma photons. The AFRRI has also established a contract to carry out the pre-clinical safety and toxicity studies under current good laboratory practices (cGLP) conditions that are required prior to an IND application;

The Biological Dosimetry Team. The Biological Dosimetry Team has made important technical achievements, which significantly advance the science and medical application of cytogenetic-based methods of radiation dose assessment. The purpose of this research is to: develop rapid assays to measure radiation exposure to casualties; enhance both treatment and management; and, distinguish the *worried well* from those with radiation injuries. Development of a combined chemical and enzymatic treatment of peripheral blood lymphocytes makes it possible to assess radiation exposures across a very broad dose range not possible with conventional cytogenetic procedures. The new procedure allows testing of large sample numbers within a single day's time instead of the usual three days. Further enhancing this development, the team, in collaboration with private industry under a cooperative research and development agreement, has developed an automated microscopic imaging system that will facilitate the processing of even larger numbers of samples with higher precision and accuracy. This new procedure, known as ***The Premature Chromosome Condensation (PCC) Assay***, promises to supplant the current gold standard dicentric assay for cytogenetic-based biodosimetry. A recently published report on the procedure and abstract presentations at several national and international conferences have drawn considerable attention from around the world to AFRRI and its Biological Dosimetry Team. ***AFRRI is rapidly becoming recognized as a leader in experimental biological dosimetry.*** The team is also at the forefront of discovery involving the identification and development of novel DNA and RNA molecular markers of radiation exposure. These markers can be measured rapidly and accurately with high precision and sensitivity using hand-held battery-operated analytical platforms designed for field use. ***Success in this area will, for the first time, allow use of radiation dose assessment and diagnostic techniques to aid triage and medical management decisions during field operations.*** The PCC assay and a software package for biodosimetry assessment are expected to transition within the next three to five years; following additional development of the PCC assay, a patent application was recently accepted after review and filed.

Also of note, during 2001, the United States Joint Standing Committee on Nuclear Energy Cooperation (JSCNEC) requested discussions on training and consultation in the areas of emergency radiological medical response and biodosimetry. **Dr. Chong-Won Cho, Director General of South Korea's Atomic Energy Bureau, Ministry of Science and Technology**, and a principal participant in the United States discussions with North Korea on the construction of nuclear power plants in North Korea, made the request for consultation and training to the JSCNEC following AFRRI's presentations

at the State Department's 22nd JSCNEC Meeting on May 16-18, 2001. The Team has since initiated a project to transcribe the Biodosimetry Assessment Tool (BAT) software for incorporation into a personal digital assistant operating system to increase the utility of the BAT Program for first responders.

During 2003, the Biodosimetry Team Leader received the honor of being appointed a Council Member of the National Council on Radiation Protection and Measurements (NCRP), an organization chartered by Congress in 1964 as a national resource for guidance on radiation protection and measurement;

The Depleted Uranium Team. In partial response to concerns over Gulf War Illness, the Depleted Uranium Team was established to study the biological consequences and potential health risks from chronic exposure to tissue-embedded depleted uranium (DU). The team's research findings have resulted in a recent change to medical doctrine, which calls for a more aggressive removal of DU shrapnel fragments. The AFRRI team also works closely with the Office of the Special Assistant for Gulf War Illness as subject matter experts and consultants on DU issues, and collaborates with the Department of Veterans Affairs in its program to medically follow Gulf War veterans wounded by DU shrapnel. Team members have been called upon on several occasions to give testimony before Congress in this regard. The development and refinement of an inductively coupled mass spectrometry procedure, which can differentiate DU from natural uranium in biological samples, has become an integral part of this collaborative study and has contributed to AFRRI's being recognized as a center of excellence in DU studies. The development of a simple chemical assay for DU, which can be configured into a compact, rapid field test to aid triage and medical management decisions, is another achievement of the DU team. Together, these accomplishments and their validation in peer-reviewed publications have made the AFRRI DU Team a focal point of recognized expertise frequently consulted by DoD and other United States and NATO government policy-makers. ***The Rapid Field-Based DU Detection Assay has been patented and is expected to transition within the next two to three years.*** As discussed earlier, on January 8, 2001, AFRRI's consultation and expertise greatly helped to defuse the crisis within the NATO alliance, stemming from claims by some allied forces that DU exposures during operations in the Balkans were the cause of serious personal illness. In addition, on January 10, 2001, AFRRI provided the Office of the Secretary of Defense with the most current scientific information on the human bioeffects of DU resulting from various sources of exposure. Long-term (24 month) experiments in animal models were ongoing during 2003; findings will be published upon their conclusion; and,

The Radiation Infection Treatment Team. Following the direction of the Director, BioSystems, Office of the Director, Defense Research and Engineering, AFRRI's Nuclear, Biological and Chemical Interactions and Countermeasures Team's scope of effort was considerably narrowed and shifted to a new area of concentration. The newly named Radiation Infection Treatment Team now focuses on the problem of understanding and developing medical countermeasures against the radiation-induced translocation of intestinal bacteria into the bloodstream, and other naturally occurring infectious sequelae that accompany higher doses of ionizing radiation. Its staff of highly trained and experienced microbiologists extend the work of the Radiation Casualty Management Team by concentrating on studies to develop preventive and treatment measures for polymicrobial sepsis. Ionizing radiation damages the cellular components of the immune system and the epithelial linings of the intestinal track and respiratory system. The damage to epithelial tissues creates portals of entry into the circulatory system for microbial agents. This, combined

with an impaired immune system leads to polymicrobial sepsis, which is the leading cause of death due to radiation injury. The team's initial objectives are to establish animal models that appropriately represent radiation-induced microbial sepsis and then to begin examining several proposed prophylactic and treatment measures that include the use of new-generation antimicrobial agents, biological response modifiers and probiotic agents.

During 2003, initial studies were completed in a small animal model demonstrating the efficacy of new-generation antibiotics for treating opportunistic infections following sublethal irradiation. The team initiated preparations for more definitive studies in a large animal model, with a long-term goal of obtaining FDA approval for re-labeling currently licensed antibiotics for use in treating radiation-induced sepsis.

RESPONSE TO THE SPECIAL REQUIREMENTS OF MEDICAL READINESS

AFRRI Projects Address Requirements of Military Operations and Homeland Security. AFRRI's portfolio of current and planned projects adequately addresses needs related to military operations and homeland security through an on-going review process by four entities.

The United States and its Allies have an obvious need for a source of reliable and relevant information on the complicating effects of irradiation on the health and safety of its military personnel and citizenry. The AFRRI expertise is intramural, dedicated, and performing original work of the highest quality in response to mission-driven questions.

- AIBS Peer Review on AFRRI, dated July of 1996, page 29.

Four Entities Guide Research Thrusts or Provide Oversight and Review. Four entities provide: guidance on program objectives and product development based on specific military requirements; or, oversight and review of the AFRRI research programs.

The AFRRI Board of Governors. At least once each year, the AFRRI Board of Governors meets to assist in the oversight of AFRRI's radiobiology research, to advise and review program plans and accomplishments, and to ensure compliance with Service Requirements. The AFRRI Board of Governors consists of the Assistant Secretary of Defense for Health Affairs; the Surgeons General of the Army, Navy, and Air Force; the Deputy Chiefs of Staff for Operations of the Army, Navy, and Air Force, or their designated representatives; and, the President of USU.

The AFRRI Board of Governors met on April 24, 2003. The first issue addressed was that the core funding of AFRRI is inadequate for research and facility maintenance and adversely impacts on product transition. The Board indicated that beginning in Fiscal Year 2006, it expected that AFRRI would have an opportunity to participate in the DoD budgeting process through an appropriate acquisition authority. A Senior Review Group, as designated by the Office of the Secretary of Defense, will be examining the necessary process. Other issues referenced the absence of formalized funding for the Medical Effects of Ionizing Radiation (MEIR) Course and the lack of identification of the training requirements from the Services. The Board recommended that Health Affairs coordinate a meeting with the Defense Medical Readiness Training Institute and AFRRI/USU to address the fielding of medical nuclear/radiological distance learning. The Army, Navy and Air Force would also need to establish policy on medical nuclear/radiological training requirements. In addition, the Board noted that Operational Requirement Documents for medical nuclear/radiological defense materiel do not exist to support the needs of the Services. It was decided to identify Army, Navy, and Marine CBT Development Activity and Joint Requirements Office POCs to develop a Mission Needs Statement and Joint Service Operational Requirement Documents for medical nuclear/radiological products.

The United States Army Nuclear Chemical Agency. Every two years, the United States Army Nuclear Chemical Agency (USANCA), with the assistance of AFRRRI subject matter experts, publishes its Specific Military Requirements (SMRs) for Nuclear and Chemical Defense. Three of USANCA's top 20 requirements fall within the mandates of AFRRRI's Medical Radiological Defense Research Program and were influential in the establishment of AFRRRI's current Defense Technology Objectives.

The last SMRs workshop was held in April of 2003, to prepare for the Fiscal Year 2005/2006 Specific Military Requirements. Six medical radiological defense items were ranked in the top 20 SMRs, one of which was in the top ten, at number four, on radioprotectants.

The Medical Force Protection Integrated Concept Team. AFRRRI is a member of the Medical Force Protection (MFP) Integrated Concept Team (ICT). This team has the responsibility to identify futuristic medical requirements for addressing MFP for the total force under all combat and non-combat conditions; this includes protection of the service member on the battlefield, at the site of injury, through his/her time spent on active duty, and following the service member's departure into civilian life and retirement. It is well within the scope of the MFP/ICT to recommend that joint requirement documents be established for medical radiological defense products such as pretreatment and treatment pharmaceuticals and fieldable and rapid assessment biodosimetry techniques.

The Office of the Director, Defense Research and Engineering. The Office of the Director, Defense Research and Engineering (DDR&E) conducts a technology area review and assessment (TARA) every two years. The TARA process includes, but is not limited to, a comprehensive review of AFRRRI's DTO's (Defense Technology Objectives) relative to each DTO's stated milestones and metrics and whether the DTO objectives adequately focus on requirements. A program overview sponsored by DDR&E was held on June 25-27, 2001. AFRRRI presented each protocol related to four main program areas: Biological Dosimetry; Depleted Uranium; Radiation Casualty Management; and, NBC Combined Effects and Countermeasures. The main finding was the requirement to define a process for transitioning products from the Science and Technology P6.3 Program to the Advanced Development Programs, P6.4 and P6.5.

As discussed above, the last TARA was held in March of 2003. To date, there is nothing definitive for AFRRRI on P6.4/P6.5 funding for advanced development (acquisition) of medical radiological defense products; such funding is tied to the requirements process. Without a military requirement (*the United States Army Nuclear Chemical Agency (USANCA) Specific Military Requirements (SMRs) for Nuclear and Chemical Defense are not included as military requirements*), a formal acquisition program funded with P6.4/P6.5 appropriations cannot be initiated. The newly established Joint Program Executive Office (JPEO), tasked to control the funding of acquisition programs, has indicated interest in several AFRRRI products; one meeting between AFRRRI and JPEO took place in the Fall of 2003, to review an initial draft of a Capability Development Document.

OPTIMIZATION OF FUTURE OPERATIONS

Resource Sharing Continues Between USU and AFRRI.

Continuation and Expansion of On-Going Cost-Avoidance Measures by USU and AFRRI. Both USU and AFRRI agree that on-going, cost-effective measures, initiated during 1992, will continue and be expanded, as appropriate. Some examples follow: 1) all contracts and maintenance agreements will be frequently reviewed for cost avoidance and savings; 2) the USU Security Division will continue to process security background investigations for the contracted employees assigned at AFRRI; 3) the USU Civilian Human Resources Directorate will continue to provide all personnel requirements for AFRRI in accordance with current agreements; 4) the USU Administrative Support Division will continue to provide support for AFRRI's visa/passport requirements; 5) the USU Contracting Directorate will continue to provide guidance and back-up support for the employee assigned with the AFRRI contracting/support requirements; 6) the AFRRI and USU Directors of Laboratory Animal Medicine will continue to share equipment and use joint purchases for supplies; 7) the USU Learning Resources Center (Library) will continue to provide all related services for AFRRI in accordance with current agreements; 8) collaboration on occupational medicine training requirements will continue; 9) the USU Veterinary Pathology Division will continue its support for AFRRI's microbiology and electron microscopy requirements; the AFRRI Veterinarian Pathologist will continue to assist USU as required; 10) USU will continue to serve as the Internet Service Provider for AFRRI; the on-going sharing of Self-Help videos and distance learning expertise will continue; and, 11) the USU Military Personnel Office will continue to share its Equal Opportunity and mandatory training classes with the AFRRI military personnel.

Necessary Steps Are Identified to Remedy Deficiencies in Resourcing.

Determination of Staffing/Funding Requirements. Generally, when an organization is integrated within another, there are anticipated savings in manpower and operating costs throughout the administrative and support areas. However, due to continuous and significant reductions in the AFRRI budget over the past years (beginning in 1992/3 when AFRRI's funding was reduced by over 40 percent), the manpower levels in the AFRRI administrative/support areas have been consistently reduced, at times below recommended manpower levels. At the same time, the USU administrative support staff has been maintained at the minimum level required to support the University's mission and to assure compliance with its controlling regulations. A joint recommendation by both USU and AFRRI has been documented in the Administration Plan of October 2000 for five additional administrative hires by AFRRI in the areas of Security, Facilities, and Research Administration. The inclusion of the funding for these additional five hires (\$262,000) was included in the estimated cost of staffing AFRRI during FY2002 and beyond; net increases in staffing in these areas has not yet occurred.

One-Time Property Renovation Costs. AFRRRI's urgent requirements for real property maintenance and repair and/or renovation projects were not addressed until late in 2003 due to AFRRRI's consistent budget reductions, which began in 1993. The Facilities Divisions of USU and AFRRRI coordinated to provide an estimated total cost for addressing these concerns. The estimated one-time cost for renovations and/or repairs totaled four million dollars. These real property maintenance and renovation projects were urgently required for the continued use of AFRRRI's 173,000 square foot complex; the costs were discussed with the Office of the Director of Defense Research and Engineering. The projects included: the building of firewalls; the renovation of the heating, ventilation, and air conditioning systems; major laboratory upgrades; and, the renovation of elevators. All of the projects were five to ten years beyond the recommended timeframes for implementation.

The four million dollars for the above mentioned renovation projects was scheduled for receipt by AFRRRI over two years, during Fiscal Years 2003 and 2004. The Fiscal Year 2003 installment of two million dollars was not received until late 2003 because of reprogramming delays for funding AFRRRI's entire program, as discussed earlier in the *Governance* section at the beginning of this portion of the USU Journal. To date, the initial funding allotment has been concentrated on major upgrades to the veterinary facility Cage Washing System, the Heating/Ventilation/Air Conditioning Systems, and the Steam Supply System. Plans are in place to allocate the remainder of the funding scheduled for receipt during 2004; however, costs for upgrades to the veterinary facility have been greater than anticipated, which will impact the implementation of the remaining renovation projects.

AFRRRI's Internal Response to Budget Deficiencies.

AFRRRI's Internal Program Management. Due to consistent budgetary reductions, in order to maintain a vibrant and productive program, AFRRRI has re-engineered its strategic approach to program management and resource allocation. A system of planning, programming, budgeting, review and analysis rounds out a streamlined process that focuses on programmatic relevance, scientific merit, and monitored productivity. This system is structured so that professional and technical staff at all levels within the Institute become stakeholders in the program and are more fully committed to meeting the Institute's goals and objectives. The implementation of this comprehensive, constantly evolving management strategy has had a profound impact on productivity and the quality enhancement of program output.

Product Transition.

Products Identified for Transition. AFRRRI has identified numerous candidate products for transition within the next ten years. With funding projections in hand, the AFRRRI has identified the unfunded requirements. Products identified for transition include: 1) true radiation radioprotectant drugs to help prevent radiation injuries in service members and emergency response personnel who

may be called upon to operate in nuclear or radiological environments; 2) treatment drugs for radiation injuries that enhance immune system function and accelerate recovery of the blood-forming system and drugs for treating radiation-induced infections; 3) treatment strategies to replace the trauma of bone marrow transplants and the complications of transplant rejection; and, 4) procedures for rapid biological assessment of radiation dose are being developed, which will contribute to the delivery of more timely and effective triage and the medical management of the radiation-injured; this will help to distinguish between the truly physically injured and the *worried well*. In the event of a serious incident, radiophobia and psychologically stressed populations would be significant and must be quickly dealt with in order to reassure the general public and to effectively manage the response. And, as discussed earlier, AFRRI will continue to coordinate with the Joint Program Executive Office (JPEO) to establish joint military requirements against which P6.4/P6.5 funding for advanced development can be justified.

Appendix A



Public Law 92-426
92nd Congress H. R. 2
September 21, 1972

An Act

To establish a Uniformed Services University of the Health Sciences and to provide scholarships to selected persons for education in medicine, dentistry, and other health professions, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Uniformed Services Health Professions Revitalization Act of 1972".

SEC. 2. (a) Title 10, United States Code, is amended by adding the following new chapters after chapter 103:

Uniformed Services Health Professions Revitalization Act of 1972.
78 Stat. 1664.
10 USC 2261.

Chapter 104. — UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

Sec.

- 2112. Establishment.
- 2113. Board of Regents.
- 2114. Students: selection; status; obligation.
- 2115. Graduates: limitation on number permitted to perform civilian Federal service.
- 2116. Reports to Congress.
- 2117. Authorization for appropriations.

2112. Establishment

(a) There is hereby authorized to be established within 25 miles of the District of Columbia a Uniformed Services University of the Health Sciences (hereinafter referred to as the "University"), at a site or sites to be selected by the Secretary of Defense, with authority to grant appropriate advanced degrees. It shall be so organized as to graduate not less than 100 medical students annually, with the first class graduating not later than 10 years after the date of the enactment of this chapter.

(b) Except as provided in subsection (a), the numbers of persons to be graduated from the University shall be prescribed by the Secretary of Defense. In so prescribing the number of persons to be graduated from the University, the Secretary of Defense shall, upon recommendation of the Board of Regents, institute actions necessary to ensure the maximum number of first-year enrollments in the University consistent with the academic capacity of the University and the needs of the uniformed services for medical personnel.

(c) The development of the University may be by such phases as the Secretary of Defense may prescribe, subject to the requirements of subsection (a).

Appendix A

2113. Board of Regents

(a) The business of the University shall be conducted by a Board of Regents (hereinafter referred to as the "Board") with funds appropriated for and provided by the Department of Defense. The Board shall consist of—

(1) nine persons outstanding in the fields of health and health education who shall be appointed from civilian life by the President, by and with the advice and consent of the Senate;

(2) the Secretary of Defense, or his designee, who shall be an ex officio member;

(3) the surgeons general of the uniformed services, who shall be ex officio members; and

(4) the person referred to in subsection (d).

(b) The term of office of each member of the Board (other than ex officio members) shall be six years except that—

(1) any member appointed to fill a vacancy occurring before the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term;

(2) the terms of office of the members first taking office shall expire, as designated by the President at the time of the appointment, three at the end of two years, three at the end of four years, and three at the end of six years; and

(3) any member whose term of office has expired shall continue to serve until his successor is appointed.

(c) One of the members of the Board (other than an ex officio member) shall be designated by the President as Chairman. He shall be the presiding officer of the Board.

(d) The Board shall appoint a Dean of the University (hereinafter referred to as the "Dean") who shall also serve as a nonvoting ex officio member of the Board.

(e) Members of the Board (other than ex officio members) while attending conferences or meetings or while otherwise performing their duties as members shall be entitled to receive compensation at a rate to be fixed by the Secretary of Defense, but not exceeding \$100 per diem and shall also be entitled to receive an allowance for necessary travel expenses while so serving away from their place of residence.

(f) The Board, after considering the recommendations of the Dean, shall obtain the services of such military and civilian professors, instructors, and administrative and other employees as may be necessary to operate the University. Civilian members of the faculty and staff shall be employed under salary schedules and granted retirement and other related benefits prescribed by the Secretary of Defense so as to place the employees of the University on a comparable basis with the employees of fully accredited schools of the health professions within the vicinity of the District of Columbia. The

Board may confer academic titles, as appropriate, upon military and civilian members of the faculty. The military members of the faculty shall include a professor of military, naval, or air science as the Board may determine.

(g) The Board is authorized to negotiate agreements with agencies of the Federal Government to utilize on a reimbursable basis appropriate existing Federal medical resources located in or near the District of Columbia. Under such agreements the facilities concerned will retain their identities and basic missions. The Board is also authorized to negotiate affiliation agreements with an accredited university or universities in or near the District of Columbia. Such agreements may include provisions for payments for educational services provided students participating in Department of Defense educational programs. The Board may also, subject to the approval of the Secretary of Defense, enter into an agreement under which the University would become part of a national university of health sciences should such an institution be established in the vicinity of the District of Columbia.

(h) The Board may establish postdoctoral, postgraduate, and technological institutes.

(i) The Board shall also establish programs in continuing medical education for military members of the health professions to the end that high standards of health care may be maintained within the military medical services.

2114. Students: selection; status; obligation.

(a) students at the University shall be selected under procedures prescribed by the Secretary of Defense. In so prescribing, the Secretary shall consider the recommendations of the Board. However, selection procedures prescribed by the Secretary of Defense shall emphasize the basic requirement that students demonstrate sincere motivation and dedication to a career in the uniformed services (as defined in section 1072(1) of this title).

(b) Students shall be commissioned officers of a uniformed service as determined under regulations prescribed by the Secretary of Defense after consulting with the Secretary of Health, Education, and Welfare. Notwithstanding any other provision of law, they shall serve on active duty in pay grade O-1 with full pay and allowances of that grade, but shall not be counted against any prescribed military strengths. Upon graduation they shall be appointed in a regular component, if qualified, unless they are covered by section 2115 of this title. Students who graduate shall be required, except as provided in section 2115 of this title, to serve thereafter on active duty under such regulations as the Secretary of Defense or the Secretary of Health, Education, and Welfare, as appropriate, may prescribe for not less than seven years, unless sooner released. The service credit exclusions specified in section 2125 of this title shall apply to students covered by this section.

(c) A period of time spent in military intern or residency training shall not be creditable in satisfying active duty obligation imposed by this section.

(d) A member of the program who, under regulations prescribed by the Secretary of Defense, is dropped from the program for deficiency in conduct or studies, or for other reasons, may be required to perform active duty in an appropriate military capacity in accordance with the active duty obligation imposed by this section. In no case shall any such member be required to serve on active

Appendix A

duty for any period in excess of a period equal to the period he participated in the program, except that in no case may any such member be required to serve on active duty less than one year.

2115. Graduates: limitation on number permitted to perform civilian Federal service

The Secretary of Defense may allow not more than 20 percent of the graduates of each class at the University to perform civilian Federal service for not less than seven years following the completion of their professional education in lieu of active duty in a uniformed service if the needs of the uniformed services do not require that such graduates perform active duty in a uniformed service and as long as the Secretary of Defense does not recall such persons to active duty in the uniformed services. Such persons who execute an agreement in writing to perform such civilian Federal service may be released from active duty following the completion of their professional education. The location and type of their duty shall be determined by the Secretary of Defense after consultation with the heads of Federal agencies concerned.

2116. Reports to Congress

The Secretary of Defense shall report periodically to the Committees on Armed Services of the Senate and House of Representatives on the feasibility of establishing education institutions similar or identical to the University at any other locations he deems appropriate. The last such report shall be submitted by June 30, 1976.

2117. Authorization for appropriations

There is hereby authorized to be appropriated to the Department of Defense for the planning, construction, development, improvement, operation, and maintenance of the University, and to otherwise accomplish the purposes of this title, for the fiscal year beginning July 1, 1972, the sum of \$15,000,000 and for each fiscal year thereafter such sum as may be authorized in the annual military construction authorization Act for such year.

* * * * *

2126. Members of the program: service credit

Service performed while a member of the program shall not be counted —

(1) in determining eligibility for retirement other than by reason of a physical disability incurred while on active duty as a member of the program; or

(2) in computing years of service creditable under section 205, other than subsection (a)(7) and (8), of title 37.

* * * * *

Added Pub. L. 92-426, 2(a), Sept. 21, 1972, 86 Stat. 713 et seq.; Pub. L. 95-589, Nov. 4, 1978, 92 Stat. 2512; Pub. L. 96-107, Nov. 9, 1979, 93 Stat. 811 et seq. (Title 10, United States Code, 2112-2117, 2126)

-CITE-

10 USC CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE
HEALTH SCIENCES

01/06/03

-EXPCITE-

TITLE 10 - ARMED FORCES
Subtitle A - General Military Law
PART III - TRAINING AND EDUCATION
CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES
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-HEAD-

CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

-MISC1-

Sec.
2112. Establishment.
2112a. Continued operation of University.
2113. Administration of University.
2114. Students: selection; status; obligation.
2115. Graduates: limitation on number permitted to perform civilian
Federal service.
2116. Military nursing research.
(2117. Repealed.)

AMENDMENTS

1996 - Pub. L. 104-201, div. A, title IX, Sec. 907(a)(2), Sept.
23, 1996, 110 Stat. 2620, added item 2112a.

Pub. L. 104-106, div. A, title VII, Sec. 741(b), title X, Sec.
1072(c)(2), Feb. 10, 1996, 110 Stat. 385, 446, substituted
'Administration of University' for 'Board of Regents' in item
2113 and added item 2116.

1990 - Pub. L. 101-510, div. A, title XIV, Sec. 1484(b)(2)(B),
Nov. 5, 1990, 104 Stat. 1716, struck out item 2117 'Authorization
for appropriations'.

1983 - Pub. L. 98-94, title XII, Sec. 1268(12)(B), Sept. 24,
1983, 97 Stat. 706, struck out item 2116 'Reports to Congress'.

1979 - Pub. L. 96-107, title VIII, Sec. 803(c)(3), Nov. 9, 1979,
93 Stat. 812, substituted 'permitted' for 'electing' and
'service' for 'duty' in item 2115.

-CITE-

10 USC Sec. 2112

01/06/03

-EXPCITE-

TITLE 10 - ARMED FORCES
Subtitle A - General Military Law
PART III - TRAINING AND EDUCATION
CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

-HEAD-

Sec. 2112. Establishment

-STATUTE-

(a) There is hereby authorized to be established within 25 miles
of the District of Columbia a Uniformed Services University of the
Health Sciences (hereinafter in this chapter referred to as the
'University'), at a site or sites to be selected by the Secretary

of Defense, with authority to grant appropriate advanced degrees. It shall be so organized as to graduate not less than 100 medical students annually.

(b) Except as provided in subsection (a), the numbers of persons to be graduated from the University shall be prescribed by the Secretary of Defense. In so prescribing the number of persons to be graduated from the University, the Secretary of Defense shall institute actions necessary to ensure the maximum number of first-year enrollments in the University consistent with the academic capacity of the University and the needs of the uniformed services for medical personnel.

(c) The development of the University may be by such phases as the Secretary of Defense may prescribe subject to the requirements of subsection (a).

-SOURCE-

(Added Pub. L. 92-426, Sec. 2(a), Sept. 21, 1972, 86 Stat. 713; amended Pub. L. 96-107, title VIII, Sec. 803(a), Nov. 9, 1979, 93 Stat. 811; Pub. L. 96-513, title V, Sec. 511(63), (64), Dec. 12, 1980, 94 Stat. 2925, 2926; Pub. L. 104-106, div. A, title X, Sec. 1072(b)(1), Feb. 10, 1996, 110 Stat. 446; Pub. L. 107-107, div. A, title X, Sec. 1048(e)(8), Dec. 28, 2001, 115 Stat. 1228.)

-MISC1-

AMENDMENTS

2001 - Subsec. (a). Pub. L. 107-107 struck out '', with the first class graduating not later than September 21, 1982'' before period at end.

1996 - Subsec. (b). Pub. L. 104-106 struck out '', upon recommendation of the Board of Regents,'' before ''institute actions necessary''.

1980 - Subsec. (a). Pub. L. 96-513 inserted ''in this chapter'' after ''hereinafter'', and substituted ''September 21, 1982'' for ''10 years after the date of the enactment of this chapter''.

1979 - Subsec. (b). Pub. L. 96-107 inserted provisions respecting the maximum number of first-year enrollments in the University.

EFFECTIVE DATE OF 1980 AMENDMENT

Amendment by Pub. L. 96-513 effective Dec. 12, 1980, see section 701(b)(3) of Pub. L. 96-513, set out as a note under section 101 of this title.

SHORT TITLE

Section 1 of Pub. L. 92-426 provided: ''That this Act (enacting this chapter and chapter 105 of this title) may be cited as the 'Uniformed Services Health Professions Revitalization Act of 1972'.''

-TRANS-

TRANSFER OF FUNCTIONS

For transfer of authority of Board of Regents of Uniformed Services University of the Health Sciences to Secretary of Defense, see section 8091 of Pub. L. 101-511, set out as a note under section 2113 of this title.

-MISC5-

CONTINUATION OF UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

Section 1071 of Pub. L. 104-106, as amended by Pub. L. 104-201,

div. A, title IX, Sec. 907(b)(2), Sept. 23, 1996, 110 Stat. 2620, provided that:

''(a) Policy. - Congress reaffirms -

''(1) the prohibition set forth in subsection (a) of section 922 of the National Defense Authorization Act for Fiscal Year 1995 (Public Law 103-337; 108 Stat. 2829; 10 U.S.C. 2112 note) regarding closure of the Uniformed Services University of the Health Sciences; and

''(2) the expression of the sense of Congress set forth in subsection (b) of such section regarding the budgetary commitment to continuation of the University.

''(b) Repealed. Pub. L. 104-201, div. A, title IX, Sec. 907(b)(2), Sept. 23, 1996, 110 Stat. 2620. See section 2112a(b) of this title.)

''(c) Budgetary Commitment to Continuation. - It is the sense of Congress that the Secretary of Defense should budget for the operation of the Uniformed Services University of the Health Sciences during fiscal year 1997 at a level at least equal to the level of operations conducted at the University during fiscal year 1995.''

Pub. L. 103-337, div. A, title IX, Sec. 922, Oct. 5, 1994, 108 Stat. 2829, as amended by Pub. L. 104-201, div. A, title IX, Sec. 907(b)(1), Sept. 23, 1996, 110 Stat. 2620, provided that:

((a) Repealed. Pub. L. 104-201, div. A, title IX, Sec. 907(b)(1), Sept. 23, 1996, 110 Stat. 2620. See section 2112a(a) of this title.)

''(b) Budgetary Commitment to Continuation. - It is the sense of Congress that the Secretary of Defense should budget for the ongoing operation of the Uniformed Services University of the Health Sciences as an institution of professional education that is vital to the education and training each year of significant numbers of personnel of the uniformed services for careers as uniformed services health care providers.

''(c) GAO Evaluation. - Not later than June 1, 1995, the Comptroller General of the United States shall submit to Congress a detailed report on the Uniformed Services University of the Health Sciences. The report shall include the following:

''(1) A comparison of the cost of obtaining physicians for the Armed Forces from the University with the cost of obtaining physicians from other sources.

''(2) An assessment of the retention rate needs of the Armed Forces for physicians in relation to the respective retention rates of physicians obtained from the University and physicians obtained from other sources and the factors that contribute to retention rates among military physicians obtained from all sources.

''(3) A review of the quality of the medical education provided at the University with the quality of medical education provided by other sources of military physicians.

''(4) A review of the overall issue of the special needs of military medicine and how those special needs are being met by physicians obtained from University and physicians obtained from other sources.

''(5) An assessment of the extent to which the University has responded to the 1990 report of the Inspector General of the Department of Defense, including recommendations as to resolution of any continuing issues relating to management and internal

fiscal controls of the University, including issues relating to the Henry M. Jackson Foundation for the Advancement of Military Medicine identified in the 1990 report.

''(6) Such other recommendations as the Comptroller General considers appropriate.''

F. EDWARD HEAELBERT SCHOOL OF MEDICINE

Pub. L. 98-94, title XII, Sec. 1265, Sept. 24, 1983, 97 Stat. 704, provided that: ''The School of Medicine of the Uniformed Services University of the Health Sciences shall after the date of the enactment of this Act (Sept. 24, 1983) be known and designated as the 'F. Edward HeAElbert School of Medicine'. Any reference to such school of medicine in any law, regulation, map, document, or other record of the United States shall after such date be deemed to be a reference to such school of medicine as the F. Edward HeAElbert School of Medicine.''

-SECREf-

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in section 2173 of this title.

-CITE-

10 USC Sec. 2112a

01/06/03

-EXPCITE-

TITLE 10 - ARMED FORCES

Subtitle A - General Military Law

PART III - TRAINING AND EDUCATION

CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

-HEAD-

Sec. 2112a. Continued operation of University

-STATUTE-

(a) Closure Prohibited. - The University may not be closed.

(b) Personnel Strength. - During the five-year period beginning on October 1, 1996, the personnel staffing levels for the University may not be reduced below the personnel staffing levels for the University as of October 1, 1993.

-SOURCE-

(Added Pub. L. 104-201, div. A, title IX, Sec. 907(a)(1), Sept. 23, 1996, 110 Stat. 2620.)

-MISC1-

PRIOR PROVISIONS

Provisions similar to those in subsec. (a) of this section were contained in Pub. L. 103-337, div. A, title IX, Sec. 922(a), Oct. 5, 1994, 108 Stat. 2829, which was set out as a note under section 2112 of this title prior to repeal by Pub. L. 104-201, Sec. 907(b)(1).

Provisions similar to those in subsec. (b) of this section were contained in Pub. L. 104-106, div. A, title X, Sec. 1071(b), Feb. 10, 1996, 110 Stat. 445, which was set out as a note under section 2112 of this title prior to repeal by Pub. L. 104-201, Sec. 907(b)(2).

-CITE-

-EXPCITE-

TITLE 10 - ARMED FORCES
Subtitle A - General Military Law
PART III - TRAINING AND EDUCATION
CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

-HEAD-

Sec. 2113. Administration of University

-STATUTE-

(a) The business of the University shall be conducted by the Secretary of Defense with funds appropriated for and provided by the Department of Defense. To assist the Secretary in an advisory capacity, there is a Board of Regents for the University. The Board shall consist of -

(1) nine persons outstanding in the fields of health and health education who shall be appointed from civilian life by the President, by and with the advice and consent of the Senate;

(2) the Secretary of Defense, or his designee, who shall be an ex officio member;

(3) the surgeons general of the uniformed services, who shall be ex officio members; and

(4) the person referred to in subsection (d).

(b) The term of office of each member of the Board (other than ex officio members) shall be six years except that -

(1) any member appointed to fill a vacancy occurring before the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term;

(2) the terms of office of the members first taking office shall expire, as designated by the President at the time of the appointment, three at the end of two years, three at the end of four years, and three at the end of six years; and

(3) any member whose term of office has expired shall continue to serve until his successor is appointed.

(c) One of the members of the Board (other than an ex officio member) shall be designated by the President as Chairman. He shall be the presiding officer of the Board.

(d) The Secretary shall appoint a Dean of the University (hereinafter in this chapter referred to as the 'Dean') who shall also serve as a nonvoting ex officio member of the Board.

(e) Members of the Board (other than ex officio members) while attending conferences or meetings or while otherwise performing their duties as members shall be entitled to receive compensation at a rate to be fixed by the Secretary, but not exceeding \$100 per diem and shall also be entitled to receive an allowance for necessary travel expenses while so serving away from their place of residence.

(f)(1) The Secretary, after considering the recommendations of the Dean, shall obtain the services of such military and civilian professors, instructors, and administrative and other employees as may be necessary to operate the University. Civilian members of the faculty and staff shall be employed under salary schedules and granted retirement and other related benefits prescribed by the Secretary so as to place the employees of the University on a comparable basis with the employees of fully accredited schools of

the health professions within the vicinity of the District of Columbia.

(2) The Secretary may confer academic titles, as appropriate, upon military and civilian members of the faculty.

(3) The military members of the faculty shall include a professor of military, naval, or air science as the Secretary may determine.

(4) The limitations in section 5373 of title 5 do not apply to the authority of the Secretary under paragraph (1) to prescribe salary schedules and other related benefits.

(g) The Secretary may negotiate agreements with agencies of the Federal Government to utilize on a reimbursable basis appropriate existing Federal medical resources located in or near the District of Columbia. Under such agreements the facilities concerned will retain their identities and basic missions. The Secretary may negotiate affiliation agreements with an accredited university or universities in or near the District of Columbia. Such agreements may include provisions for payments for educational services provided students participating in Department of Defense educational programs. The Secretary may enter into an agreement under which the University would become part of a national university of health sciences should such an institution be established in the vicinity of the District of Columbia.

(h) The Secretary of Defense may establish the following educational programs at the University:

(1) Postdoctoral, postgraduate, and technological institutes.

(2) A graduate school of nursing.

(3) Other schools or programs that the Secretary determines necessary in order to operate the University in a cost-effective manner.

(i) The Secretary shall also establish programs in continuing medical education for military members of the health professions to the end that high standards of health care may be maintained within the military medical services.

(j)(1) The Secretary also is authorized -

(A) to enter into contracts with, accept grants from, and make grants to the Henry M. Jackson Foundation for the Advancement of Military Medicine established under section 178 of this title, or any other nonprofit entity, for the purpose of carrying out cooperative enterprises in medical research, medical consultation, and medical education;

(B) to make available to the Henry M. Jackson Foundation for the Advancement of Military Medicine, on such terms and conditions as the Secretary determines appropriate, such space, facilities, equipment, and support services within the University as the Secretary considers necessary to accomplish cooperative enterprises undertaken by such Foundation and the University;

(C) to enter into contracts with the Henry M. Jackson Foundation for the Advancement of Military Medicine under which the Secretary may furnish the services of such professional, technical, or clerical personnel as may be necessary to fulfill cooperative enterprises undertaken by such foundation and the University;

(D) to accept, hold, administer, invest, and spend any gift, devise, or bequest of personal property made to the University, including any gift, devise, or bequest for the support of an academic chair, teaching, research, or demonstration project;

(E) to enter into agreements with the Henry M. Jackson

Foundation for the Advancement of Military Medicine, or with any other nonprofit entity, under which scientists or other personnel of the Foundation or other entity may be utilized by the University for the purpose of enhancing the activities of the University in education, research, and technological applications of knowledge; and

(F) to accept the voluntary services of guest scholars and other persons.

(2) The Secretary may not enter into any contract with the Henry M. Jackson Foundation for the Advancement of Military Medicine, or with any other entity, if the contract would obligate the University to make outlays in advance of the enactment of budget authority for such outlays.

(3) Scientists or other medical personnel utilized by the University under an agreement described in clause (E) of paragraph (1) may be appointed to any position within the University and may be permitted to perform such duties within the University as the Secretary may approve.

(4) A person who provides voluntary services under the authority of clause (F) of paragraph (1) shall be considered to be an employee of the Federal Government for the purposes of chapter 81 of title 5, relating to compensation for work-related injuries, and to be an employee of the Federal Government for the purposes of chapter 171 of title 28, relating to tort claims. Such a person who is not otherwise employed by the Federal Government shall not be considered to be a Federal employee for any other purpose by reason of the provision of such services.

-SOURCE-

(Added Pub. L. 92-426, Sec. 2(a), Sept. 21, 1972, 86 Stat. 714; amended Pub. L. 95-589, Nov. 4, 1978, 92 Stat. 2512; Pub. L. 96-513, title V, Sec. 511(64), Dec. 12, 1980, 94 Stat. 2926; Pub. L. 98-36, Sec. 3, May 27, 1983, 97 Stat. 201; Pub. L. 98-132, Sec. 2(b), Oct. 17, 1983, 97 Stat. 849; Pub. L. 99-661, div. A, title V, Sec. 505, Nov. 14, 1986, 100 Stat. 3864; Pub. L. 101-189, div. A, title VII, Sec. 726(a), (b)(1), Nov. 29, 1989, 103 Stat. 1480; Pub. L. 101-510, div. A, title XIII, Sec. 1322(a)(3), Nov. 5, 1990, 104 Stat. 1671; Pub. L. 104-106, div. A, title X, Sec. 1072(a), (b)(2), (c)(1), Feb. 10, 1996, 110 Stat. 446; Pub. L. 106-65, div. A, title XI, Sec. 1108, Oct. 5, 1999, 113 Stat. 778; Pub. L. 106-398, Sec. 1 ((div. A), title X, Sec. 1087(a)(12)), Oct. 30, 2000, 114 Stat. 1654, 1654A-291.)

-MISC1-

AMENDMENTS

2000 - Subsec. (f). Pub. L. 106-398 designated penultimate sentence and last sentence of par. (1) as pars. (2) and (3), respectively, redesignated former par. (3) as (4), and struck out former par. (2) which read as follows: "The Secretary may exempt, at any time, a physician who is a member of the faculty from the restrictions in subsections (a), (b), and (c) of section 5532 of title 5, if the Secretary determines that such exemption is necessary to recruit or retain well-qualified physicians for the faculty of the University. An exemption granted under this paragraph shall terminate upon any break in employment with the University by a physician of three days or more. An exemption granted under this paragraph to a person shall apply to the retired

pay of such person beginning with the first month after the month in which the exemption is granted. Not more than five exemptions may be in effect under this paragraph at any time."

1999 - Subsec. (f)(3). Pub. L. 106-65 added par. (3).

1996 - Pub. L. 104-106, Sec. 1072(c)(1), substituted "Administration of University" for "Board of Regents" as section catchline.

Subsec. (a). Pub. L. 104-106, Sec. 1072(b)(2)(A), substituted "conducted by the Secretary of Defense" for "conducted by a Board of Regents (hereinafter in this chapter referred to as the 'Board')" and inserted after first sentence "To assist the Secretary in an advisory capacity, there is a Board of Regents for the University."

Subsec. (d). Pub. L. 104-106, Sec. 1072(b)(2)(B), substituted "The Secretary shall appoint" for "The Board shall appoint".

Subsec. (e). Pub. L. 104-106, Sec. 1072(b)(2)(C), struck out "of Defense" after "Secretary".

Subsec. (f). Pub. L. 104-106, Sec. 1072(b)(2)(D), (F), in par. (1), substituted "Secretary, after" for "Board, after", "Secretary so" for "Secretary of Defense so", and "Secretary may" for "Board may" in two places, and in par. (2), substituted "Secretary" for "Board" in two places.

Subsec. (g). Pub. L. 104-106, Sec. 1072(b)(2)(E), substituted "Secretary may negotiate agreements" for "Board is authorized to negotiate agreements", "Secretary may negotiate affiliation" for "Board is also authorized to negotiate affiliation", and "Secretary may enter" for "Board may also, subject to the approval of the Secretary of Defense, enter".

Subsec. (h). Pub. L. 104-106, Sec. 1072(a), amended subsec. (h) generally. Prior to amendment, subsec. (h) read as follows: "The Board may establish postdoctoral, postgraduate, and technological institutes."

Subsecs. (i), (j). Pub. L. 104-106, Sec. 1072(b)(2)(F), substituted "Secretary" for "Board" wherever appearing.

1990 - Subsec. (j)(1). Pub. L. 101-510, Sec. 1322(a)(3)(A), struck out "subject to paragraph (2)," before "to make" in subpar. (B) and before "to enter" in subpars. (C) and (E).

Subsec. (j)(2) to (5). Pub. L. 101-510, Sec. 1322(a)(3)(B), (C), redesignated pars. (3) to (5) as (2) to (4), respectively, and struck out former par. (2) which read as follows: "The authority of the Board under clauses (B), (C), and (E) of paragraph (1) may be exercised only if -

"(A) before the Board enters into any arrangement under which any space, facility, equipment, or support service is made available under clause (B) of such paragraph, before the Board enters into any contract under clause (C) of such paragraph, or before the Board enters into any agreement under clause (E) of such paragraph, it notifies the Committees on Armed Services of the Senate and the House of Representatives in writing of the proposed arrangement, contract, or agreement, as the case may be, the terms and conditions thereof, and, in the case of a proposed agreement under clause (E) of paragraph (1), any appointments proposed to be made under the authority of paragraph (4) in connection with the agreement, and

"(B) a period of fifteen days has elapsed following the date on which the notice is received by such committees."

1989 - Subsec. (f)(2). Pub. L. 101-189, Sec. 726(a), substituted

'five exemptions' for 'two exemptions'.

Subsec. (j)(1)(A). Pub. L. 101-189, Sec. 726(b)(1), inserted '', accept grants from, and make grants to' after 'contracts with' and substituted 'or any other' for 'or with any other'.

1986 - Subsec. (f). Pub. L. 99-661 designated existing provisions as par. (1) and added par. (2).

1983 - Subsec. (j). Pub. L. 98-132 inserted 'Henry M. Jackson' before 'Foundation for the Advancement of Military Medicine' wherever appearing.

Pub. L. 98-36 added subsec. (j).

1980 - Subsecs. (a) and (d). Pub. L. 96-513 inserted 'in this chapter' after 'hereinafter'.

1978 - Subsec. (b)(3). Pub. L. 95-589 added par. (3).

EFFECTIVE DATE OF 1980 AMENDMENT

Amendment by Pub. L. 96-513 effective Dec. 12, 1980, see section 701(b)(3) of Pub. L. 96-513, set out as a note under section 101 of this title.

-TRANS-

TRANSFER OF FUNCTIONS

Section 8091 of Pub. L. 101-511 provided that: 'Notwithstanding any other provision of law, all authority of the Board of Regents of the Uniformed Services University of the Health Sciences is hereby transferred to the Secretary of Defense, and the Board hereafter shall be an advisory board to the Secretary of Defense.'

-SECREP-

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in section 2114 of this title.

-CITE-

10 USC Sec. 2114

01/06/03

-EXPCITE-

TITLE 10 - ARMED FORCES

Subtitle A - General Military Law

PART III - TRAINING AND EDUCATION

CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

-HEAD-

Sec. 2114. Students: selection; status; obligation

-STATUTE-

(a) Medical students at the University shall be selected under procedures prescribed by the Secretary of Defense. In so prescribing, the Secretary shall consider the recommendations of the Board. However, selection procedures prescribed by the Secretary of Defense shall emphasize the basic requirement that students demonstrate sincere motivation and dedication to a career in the uniformed services (as defined in section 1072(1) of this title).

(b) Medical students shall be commissioned officers of a uniformed service as determined under regulations prescribed by the Secretary of Defense after consulting with the Secretary of Health and Human Services. Notwithstanding any other provision of law, they shall serve on active duty in pay grade O-1 with full pay and allowances of that grade. Upon graduation they shall be appointed

in a regular component, if qualified, unless they are covered by section 2115 of this title. Medical students who graduate shall be required, except as provided in section 2115 of this title, to serve thereafter on active duty under such regulations as the Secretary of Defense or the Secretary of Health and Human Services, as appropriate, may prescribe for not less than seven years, unless sooner released. Upon completion of, or release from, the active-duty service obligation, a member of the program who served on active-duty for less than 10 years shall serve in the Ready Reserve for the period specified in the following table:

Period of Service on Active Duty	Ready Reserve Obligation
Less than 8 years	6 years
8 years or more, but less than 9	4 years
9 years or more, but less than 10	2 years

The service credit exclusions specified in section 2126 of this title shall apply to students covered by this section.

(c) A period of time spent in military intern or residency training shall not be creditable in satisfying a commissioned service obligation imposed by this section.

(d) A medical student who, under regulations prescribed by the Secretary of Defense, is dropped from the program for deficiency in conduct or studies, or for other reasons, may be required to perform active duty in an appropriate military capacity in accordance with the active duty obligation imposed by this section. In no case shall any such student be required to serve on active duty for any period in excess of a period equal to the period he participated in the program, except that in no case may any such student be required to serve on active duty less than one year.

(e) (1) The Secretary of Defense may enter into agreements with foreign military medical schools for reciprocal education programs under which students at the University receive specialized military medical instruction at the foreign military medical school and military medical personnel of the country of such medical school receive specialized military medical instruction at the University. Any such agreement may be made on a reimbursable basis or a nonreimbursable basis.

(2) Not more than 40 persons at any one time may receive instruction at the University under this subsection. Attendance of such persons at the University may not result in a decrease in the number of students enrolled in the University. Subsection (b) does not apply to students receiving instruction under this subsection.

(3) The Dean of the University, with the approval of the Secretary of Defense, shall determine the countries from which persons may be selected to receive instruction under this subsection and the number of persons that may be selected from each country. The Dean may establish qualifications and methods of selection and shall select those persons who will be permitted to receive instruction at the University. The qualifications established shall be comparable to those required of United States citizens.

(4) Each foreign country from which a student is permitted to receive instruction at the University under this subsection shall reimburse the United States for the cost of providing such instruction, unless such reimbursement is waived by the Secretary of Defense. The Secretary of Defense shall prescribe the rates for

reimbursement under this paragraph.

(5) Except as the Dean determines, a person receiving instruction at the University under this subsection is subject to the same regulations governing attendance, discipline, discharge, and dismissal as a student enrolled in the University. The Secretary may prescribe regulations with respect to access to classified information by a person receiving instruction under this subsection that differ from the regulations that apply to a student enrolled in the University.

(f) In this section, the term "commissioned service obligation" means, with respect to an officer who is a graduate of the University, the period beginning on the date of the appointment of the officer in a regular component after graduation and ending on the tenth anniversary of that appointment.

(g) The Secretary of Defense shall establish such selection procedures, service obligations, and other requirements as the Secretary considers appropriate for graduate students (other than medical students) in a postdoctoral, postgraduate, or technological institute established pursuant to section 2113(h) of this title.

(h) A graduate of the University who is relieved of the graduate's active-duty service obligation under subsection (b) before the completion of that active-duty service obligation may be given, with or without the consent of the graduate, an alternative obligation in the same manner as provided in subparagraphs (A) and (B) of paragraph (1) of section 2123(e) of this title or paragraph (2) of such section for members of the Armed Forces Health Professions Scholarship and Financial Assistance program.

-SOURCE-

(Added Pub. L. 92-426, Sec. 2(a), Sept. 21, 1972, 86 Stat. 715; amended Pub. L. 96-107, title VIII, Sec. 803(b), Nov. 9, 1979, 93 Stat. 812; Pub. L. 96-513, title I, Sec. 114, title V, Sec. 511(65), Dec. 12, 1980, 94 Stat. 2877, 2926; Pub. L. 98-525, title XV, Sec. 1535, Oct. 19, 1984, 98 Stat. 2633; Pub. L. 101-189, div. A, title V, Sec. 511(a), Nov. 29, 1989, 103 Stat. 1439; Pub. L. 101-510, div. A, title V, Sec. 533(a), (b), Nov. 5, 1990, 104 Stat. 1564; Pub. L. 103-160, div. A, title VII, Sec. 732(a), Nov. 30, 1993, 107 Stat. 1696; Pub. L. 104-106, div. A, title X, Sec. 1072(b)(3), Feb. 10, 1996, 110 Stat. 446; Pub. L. 104-201, div. A, title VII, Sec. 741(b), Sept. 23, 1996, 110 Stat. 2599; Pub. L. 105-85, div. A, title X, Sec. 1073(a)(38), Nov. 18, 1997, 111 Stat. 1902.)

-MISC1-

AMENDMENTS

1997 - Subsec. (h). Pub. L. 105-85 substituted "section 2123(e)" for "section 2123(e)(1)".

1996 - Subsec. (e)(1). Pub. L. 104-106 substituted "The Secretary of Defense" for "The Board, upon approval of the Secretary of Defense,".

Subsec. (h). Pub. L. 104-201 added subsec. (h).

1993 - Subsec. (a). Pub. L. 103-160, Sec. 732(a)(1), substituted "Medical students" for "Students" in first sentence.

Subsec. (b). Pub. L. 103-160, Sec. 732(a)(2), substituted "Medical students" for "Students" in two places.

Subsec. (d). Pub. L. 103-160, Sec. 732(a)(3), substituted "medical student" for "member of the program" in first sentence

and "any such student" for "any such member" in two places in second sentence.

Subsec. (g). Pub. L. 103-160, Sec. 732(a)(4), added subsec. (g).

1990 - Subsec. (b). Pub. L. 101-510, Sec. 533(b)(1), after fourth sentence inserted provisions relating to the time obligation to be served in the Ready Reserve upon completion of, or release from, the active-duty service obligation for members of the program who served on active duty for less than 10 years.

Pub. L. 101-510, Sec. 533(a), substituted "seven years" for "10 years" in fourth sentence.

Subsec. (c). Pub. L. 101-510, Sec. 533(b)(2), substituted "a commissioned service obligation" for "an active duty obligation".

Subsec. (f). Pub. L. 101-510, Sec. 533(b)(3), added subsec. (f).

1989 - Subsec. (b). Pub. L. 101-189 substituted "10 years" for "seven years" in fourth sentence.

1984 - Subsec. (e). Pub. L. 98-525 added subsec. (e).

1980 - Subsec. (b). Pub. L. 96-513, Sec. 511(65), substituted "Secretary of Health and Human Services" for "Secretary of Health, Education, and Welfare" wherever appearing.

Pub. L. 96-513, Sec. 114, struck out provision under which officers attending the Uniformed Services University of Health Sciences were not counted against authorized military strengths.

1979 - Subsec. (b). Pub. L. 96-107 substituted "uniformed" for "uniform".

EFFECTIVE DATE OF 1996 AMENDMENT

Section 741(c) of Pub. L. 104-201 provided that: "The amendments made by this section (amending this section and section 2123 of this title) shall apply with respect to individuals who first become members of the Armed Forces Health Professions Scholarship and Financial Assistance program or students of the Uniformed Services University of the Health Sciences on or after October 1, 1996."

EFFECTIVE DATE OF 1993 AMENDMENT

Section 732(b) of Pub. L. 103-160 provided that: "The amendments made by subsection (a) (amending this section) shall apply with respect to students attending the Uniformed Services University of the Health Sciences on or after the date of the enactment of this Act (Nov. 30, 1993)."

EFFECTIVE DATE OF 1990 AMENDMENT

Section 533(d) of Pub. L. 101-510 provided that: "The amendment made by subsection (b) (amending this section) shall take effect on December 31, 1991, and shall apply to persons who are first admitted to the Uniformed Services University of the Health Sciences after that date."

EFFECTIVE DATE OF 1989 AMENDMENT

Section 511(e) of Pub. L. 101-189, as amended by Pub. L. 101-510, div. A, title V, Sec. 533(c), Nov. 5, 1990, 104 Stat. 1564, provided that: "The amendments made by this section (amending this section and sections 4348, 6959, and 9348 of this title) shall apply to persons who are first admitted to one of the military service academies after December 31, 1991."

EFFECTIVE DATE OF 1980 AMENDMENT

Amendment by section 114 of Pub. L. 96-513 effective Sept. 15, 1981, but the authority to prescribe regulations under the amendment by Pub. L. 96-513 effective on Dec. 12, 1980, see section 701 of Pub. L. 96-513, set out as a note under section 101 of this

title.

Amendment by section 511(65) of Pub. L. 96-513 effective Dec. 12, 1980, see section 701(b)(3) of Pub. L. 96-513.

-TRANS-

TRANSFER OF FUNCTIONS

For transfer of authority of Board of Regents of Uniformed Services University of the Health Sciences to Secretary of Defense, see section 8091 of Pub. L. 101-511, set out as a note under section 2113 of this title.

-MISC5-

TRANSITION PROVISIONS

Section 741(d)(2) of Pub. L. 104-201 provided that: "In the case of any person who, as of October 1, 1996, is serving an active-duty service obligation as a graduate of the Uniformed Services University of the Health Sciences or is incurring an active-duty service obligation as a student of the University, and who is subsequently relieved of the active-duty service obligation before the completion of the obligation, the alternative obligations authorized by the amendment made by subsection (b) (amending this section) may be implemented by the Secretary of Defense with the agreement of the person."

-CITE-

10 USC Sec. 2115

01/06/03

-EXPCITE-

TITLE 10 - ARMED FORCES

Subtitle A - General Military Law

PART III - TRAINING AND EDUCATION

CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

-HEAD-

Sec. 2115. Graduates: limitation on number permitted to perform civilian Federal service

-STATUTE-

The Secretary of Defense may allow not more than 20 percent of the graduates of each class at the University to perform civilian Federal service for not less than seven years following the completion of their professional education in lieu of active duty in a uniformed service if the needs of the uniformed services do not require that such graduates perform active duty in a uniformed service and as long as the Secretary of Defense does not recall such persons to active duty in the uniformed services. Such persons who execute an agreement in writing to perform such civilian Federal service may be released from active duty following the completion of their professional education. The location and type of their duty shall be determined by the Secretary of Defense after consultation with the heads of Federal agencies concerned.

-SOURCE-

(Added Pub. L. 92-426, Sec. 2(a), Sept. 21, 1972, 86 Stat. 716; amended Pub. L. 96-107, title VIII, Sec. 803(c)(1), (2), Nov. 9, 1979, 93 Stat. 812.)

-MISC1-

AMENDMENTS

1979 - Pub. L. 96-107, Sec. 803(c)(2), substituted "'permitted'" for "'electing'" and "'service'" for "'duty'" in section catchline.

Pub. L. 96-107, Sec. 803(c)(1), substituted provisions respecting authority of the Secretary of Defense to allow graduates to perform civilian Federal service and the execution of agreements for such service as prerequisites for release from active duty following completion of education, for provisions relating to limitations on the number of graduates electing to perform civilian Federal duty, agreements respecting such service, and release from active duty upon completion of their education.

-SECREf-

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in section 2114 of this title.

-CITE-

10 USC Sec. 2116

01/06/03

-EXPCITE-

TITLE 10 - ARMED FORCES

Subtitle A - General Military Law

PART III - TRAINING AND EDUCATION

CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

-HEAD-

Sec. 2116. Military nursing research

-STATUTE-

(a) Definitions. - In this section:

(1) The term "'military nursing research'" means research on the furnishing of care and services by nurses in the armed forces.

(2) The term "'TriService Nursing Research Program'" means the program of military nursing research authorized under this section.

(b) Program Authorized. - The Secretary of Defense may establish at the University a program of military nursing research.

(c) TriService Research Group. - The TriService Nursing Research Program shall be administered by a TriService Nursing Research Group composed of Army, Navy, and Air Force nurses who are involved in military nursing research and are designated by the Secretary concerned to serve as members of the group.

(d) Duties of Group. - The TriService Nursing Research Group shall -

(1) develop for the Department of Defense recommended guidelines for requesting, reviewing, and funding proposed military nursing research projects; and

(2) make available to Army, Navy, and Air Force nurses and Department of Defense officials concerned with military nursing research -

(A) information about nursing research projects that are being developed or carried out in the Army, Navy, and Air Force; and

(B) expertise and information beneficial to the encouragement of meaningful nursing research.

(e) Research Topics. - For purposes of this section, military nursing research includes research on the following issues:

- (1) Issues regarding how to improve the results of nursing care and services provided in the armed forces in time of peace.
- (2) Issues regarding how to improve the results of nursing care and services provided in the armed forces in time of war.
- (3) Issues regarding how to prevent complications associated with battle injuries.
- (4) Issues regarding how to prevent complications associated with the transporting of patients in the military medical evacuation system.
- (5) Issues regarding how to improve methods of training nursing personnel.
- (6) Clinical nursing issues, including such issues as prevention and treatment of child abuse and spouse abuse.
- (7) Women's health issues.
- (8) Wellness issues.
- (9) Preventive medicine issues.
- (10) Home care management issues.
- (11) Case management issues.

-SOURCE-

(Added Pub. L. 104-106, div. A, title VII, Sec. 741(a), Feb. 10, 1996, 110 Stat. 384.)

-MISC1-

PRIOR PROVISIONS

A prior section 2116, added Pub. L. 92-426, Sec. 2(a), Sept. 21, 1972, 86 Stat. 716, directed Secretary of Defense to report periodically to Committees on Armed Services of the Senate and House of Representatives on feasibility of establishing educational institutions similar or identical to University at any other locations he deemed appropriate, with last such report to be submitted by June 30, 1976, prior to repeal by Pub. L. 98-94, title XII, Sec. 1268(12)(A), Sept. 24, 1983, 97 Stat. 706.

-CITE-

10 USC Sec. 2117

01/06/03

-EXPCITE-

TITLE 10 - ARMED FORCES

Subtitle A - General Military Law

PART III - TRAINING AND EDUCATION

CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

-HEAD-

(Sec. 2117. Repealed. Pub. L. 101-510, div. A, title XIV, Sec. 1484(b)(2)(A), Nov. 5, 1990, 104 Stat. 1716)

-MISC1-

Section, added Pub. L. 92-426, Sec. 2(a), Sept. 21, 1972, 86 Stat. 716, authorized appropriations for the Uniformed Services University of the Health Sciences.

-CITE-



Department of Defense DIRECTIVE

NUMBER 5105.45

March 9, 2000

DA&M

SUBJECT: Uniformed Services University of the Health Sciences (USUHS)

- (a) DoD Directive 5105.45, subject as above, May 17, 1999 (hereby canceled)
- (b) Chapter 104 et seq. of title 10, United States Code
- (c) Secretary of Defense Report, "Defense Reform Initiative," November 1997¹
- (d) Program Budget Decision 711R, "Defense Reform Initiative - Office of the Secretary of Defense and the Defense Agencies," December 17, 1997
- (e) through (g), see enclosure 1

1. REISSUANCE AND PURPOSE

This Directive reissues reference (a) to:

- 1.1. Update the mission, policy, organization and management, responsibilities and functions, relationships, and authorities of the USUHS.
- 1.2. Provide for USUHS governance under reference (b).
- 1.3. Establish the USUHS Executive Committee, pursuant to the direction of reference (c).
- 1.4. Designate the Secretary of the Navy as the "DoD Executive Agent" for administrative support of the USUHS, in accordance with reference (d).

¹ Available at <http://www.defenselink.mil/pubs/dodreform/>

2. APPLICABILITY

This Directive applies to the Office of the Secretary of Defense (OSD), the Military Departments, the Chairman of the Joint Chiefs of Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other organizational entities within the Department of Defense (hereafter referred to collectively as "the DoD Components").

3. DEFINITIONS

3.1. Academic Affairs. Faculty appointments, promotions and organization, awarding of degrees, curriculum design and implementation, academic requirements for admission and graduation, and related matters vital to the academic well-being of the USUHS.

3.2. Uniformed Services. The Army, the Navy, the Air Force, the Marine Corps, the Coast Guard, the Commissioned Corps of the U.S. Public Health Service, and the Commissioned Corps of the National Oceanic and Atmospheric Administration.

4. MISSION

The USUHS shall:

4.1. Educate and train competent medical personnel qualified to serve the needs of the Uniformed Services through providing the highest quality education programs in the health sciences.

4.2. Place high priority on educating and training personnel to meet the combat and peacetime medical needs of the Armed Forces.

4.3. Grant applicable advanced academic degrees; establish postdoctoral and postgraduate programs, and technological institutes; conduct medical readiness training and continuing education for members of the Uniformed Services in the health professions; and prepare individuals for careers in the health professions in the Uniformed Services.

5. POLICY

It is DoD policy that:

5.1. Consistent with the performance of the DoD mission and with established practices covering academic independence and integrity in the fields of medical and health sciences education, the Department of Defense recognizes the unique role of the USUHS Board of Regents in advising the Secretary of Defense. Consistent with applicable law and accomplishment of the DoD mission, the Assistant Secretary of Defense for Health Affairs (ASD(HA)), the USUHS Executive Committee, and the President of the USUHS shall be guided by the advice of the USUHS Board of Regents on academic affairs.

5.2. USUHS funding shall be within the Defense Health Program.

6. ORGANIZATION AND MANAGEMENT

6.1. The USUHS is a joint entity of the three Military Departments, subject to the overall supervision of the ASD(HA) and the management direction of the USUHS Executive Committee, and shall consist of the following:

6.1.1. A Board of Regents that shall be established and operated, in accordance with 5 U.S.C. Appendix (Federal Advisory Committee Act) (reference (e)), and shall consist of members appointed under Section 2113(a), Chapter 104 of 10 U.S.C. (reference (b)).

6.1.2. A President of the USUHS, who shall be the chief executive officer of the USUHS, and who also is the Dean of the USUHS, as described in reference (b), and who shall report to the ASD(HA), through the USUHS Executive Committee.

6.1.3. A Dean of the F. Edward Hebert School of Medicine, who shall function as the chief academic officer of the F. Edward Hebert School of Medicine and report to the President of the USUHS.

6.1.4. A Dean of the Graduate School of Nursing, who shall function as the chief academic officer of the Graduate School of Nursing and report to the President of the USUHS.

6.1.5. Other subordinate positions and elements as are established by the President of the USUHS within authorized resources.

6.1.6. Students selected under procedures prescribed, in accordance with Chapter 104 of reference (b), and graduate students.

6.2. The USUHS Executive Committee is established to provide the supervision and management of the USUHS, pursuant to the Defense Reform Initiative (reference (c)), and consistent with the direction of the Secretary of Defense to reduce the operational and program management responsibilities of the OSD.

6.2.1. The USUHS Executive Committee shall consist of the Surgeons General of the three Military Departments and shall report to the ASD(HA) on USUHS matters.

6.2.2. A Chair shall be designated from among the membership, as mutually determined by the membership.

6.2.3. The President of the USUHS shall provide an Executive Secretary and associated staff support.

6.2.4. The DoD Executive Agent shall be represented on the USUHS Executive Committee by the Surgeon General of the Navy.

7. RESPONSIBILITIES AND FUNCTIONS

7.1. The Assistant Secretary of Defense for Health Affairs, under the Under Secretary of Defense for Personnel and Readiness, shall:

7.1.1. In accordance with DoD Directive 5136.1 (reference (f)), exercise authority, direction and control over the medical personnel, facilities, programs, funding, and associated resources in the Department of Defense as they relate to the USUHS.

7.1.2. Exercise the authorities over the USUHS vested in the Secretary of Defense by Chapter 104 of 10 U.S.C. (reference (b)), except that the authority to appoint the President of the USUHS is reserved to the Secretary of Defense.

7.1.3. Develop policies and issue policy guidelines to ensure the effective integration of USUHS programs and activities in the DoD Health Program. That includes, but is not limited to, the development of DoD Directives, the issuance of DoD Instructions, and OSD-level participation in the Planning, Programming, and Budgeting System process.

7.1.4. Ensure that the advice of the Board of Regents in matters of academic affairs is considered, in accordance with the policy in section 5.1., above.

7.1.5. Ensure that the Board of Regents shall participate in the governance of the USUHS by advising the Secretary of Defense, through the ASD(HA), on academic affairs and on the administration and management of the USUHS.

7.1.6. Ensure that the President of the USUHS shall:

7.1.6.1. Make certain that educational programs leading to a Doctor of Medicine or other advanced degrees in the health professions meet the standards of applicable and recognized, accrediting, licensing, and certifying Agencies.

7.1.6.2. Carry out those responsibilities and functions pertaining to the supervision and management of University programs, activities, personnel, and resources as the ASD(HA) and Executive Committee prescribe.

7.1.7. Ensure that the Dean of the F. Edward Hebert School of Medicine shall develop and administer policies and procedures on the academic affairs of the F. Edward Hebert School of Medicine.

7.1.8. Ensure that the Dean of the Graduate School of Nursing shall develop and administer policies and procedures on the academic affairs of the Graduate School of Nursing.

7.2. The Secretary of the Navy shall serve as the DoD Executive Agent for administrative support of the USUHS, to include budget, personnel, information, facilities, and other resource responsibilities required for the mission of the USUHS.

7.2.1. Civilian personnel authorizations shall be under the purview of the DoD Executive Agent and civilian employees shall be carried on the rolls of the Department of the Navy.

7.2.2. The USUHS funding and personnel requirements shall not be offset against the Navy Surgeon General budget or work-year allocations.

7.3. The Director, Defense Legal Services Agency, shall provide legal advice and services for the USUHS.

7.4. The USUHS Executive Committee, consistent with the policy guidance of the ASD(HA), shall:

7.4.1. Oversee the operation of the USUHS and provide management direction to the President of the USUHS on the day-to-day operation of the USUHS.

7.4.2. Provide guidance to the President of the USUHS and advice to the ASD(HA) on the annual USUHS program and budget submissions.

7.4.3. Provide advice to the ASD(HA) on health policy matters relating to the USUHS.

8. RELATIONSHIPS

8.1. In carrying out the responsibilities and functions of the chief executive officer of the USUHS, the President of the USUHS shall:

8.1.1. Obtain advice from the USUHS Executive Committee and the Board of Regents, as necessary, to assist the President of the USUHS in performing the President's duties.

8.1.2. Coordinate and exchange information and advice with elements of the OSD and the other DoD Components having collateral or related responsibilities.

8.1.3. Make use of established facilities and services in the Department of Defense and other Government Agencies, when practical, to avoid duplication and achieve maximum efficiency and economy.

8.1.4. Consult and coordinate with other Governmental Agencies and non-Governmental agencies on matters for the mission and programs of the USUHS.

8.2. The Heads of the DoD Components shall coordinate with the ASD(HA) on all matters relating to the mission and programs of the USUHS.

9. AUTHORITIES

The President of the USUHS is specifically delegated the authority to:

9.1. Obtain reports, information, advice, and assistance consistent with DoD Directive 8910.1 (reference (g)), as necessary, to carry out assigned responsibilities and functions.

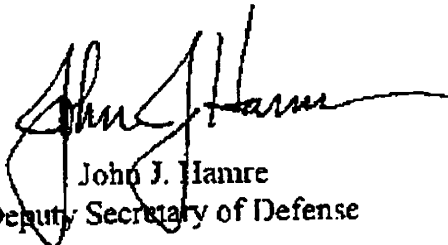
9.2. Communicate directly with appropriate representatives of the DoD Components and other Executive Departments and Agencies, and members of the public, as appropriate, on matters related to the mission and programs of the USUHS.

9.3. Appoint civilian members of the faculty and staff under salary schedules and grant retirement and other related benefits prescribed by the Secretary of Defense so as to place the employees of the USUHS on a comparable basis with the employees of fully accredited schools of the health professions within the vicinity of the District of Columbia, as provided by law (reference (b)).

9.4. Exercise the administrative authorities contained in enclosure 2.

10. EFFECTIVE DATE

This Directive is effective immediately.



John J. Hamre
Deputy Secretary of Defense

Enclosures - 2

E1. References, continued

E2. Delegations of Authority

E1. ENCLOSURE 1

REFERENCES, continued

- (e) Title 5, United States Code
- (f) DoD Directive 5136.1, "Assistant Secretary of Defense for Health Affairs (ASD(HA))," May 27, 1994
- (g) DoD Directive 8910.1, "Management and Control of Information Requirements," June 11, 1993

E2. ENCLOSURE 2
DELEGATIONS OF AUTHORITY

E2.1.1. Under the authority vested in the Secretary of Defense, and subject to the authority, direction, and control of the Secretary of Defense, the Under Secretary of Defense for Personnel and Readiness, and the ASD(HA), the President of the USUHS is hereby delegated authority, subject to paragraph E2.1.2., below, as required in the administration and operation of the USUHS, to:

E2.1.1.1. Exercise the powers vested in the Secretary of Defense by 5 U.S.C. 301, 302(b), 3101, and 5107 on the employment, direction, and general administration of USUHS civilian personnel.

E2.1.1.2. Fix rates of pay for wage-rate employees exempted from the "Classification Act of 1949" by 5 U.S.C. 5102 on the basis of rates established under the Federal Wage System. The fixing of such rates shall follow the wage schedule established by the DoD Wage Fixing Authority.

E2.1.1.3. Administer oaths of office to those entering the Executive Branch of the Federal Government, in accordance with 5 U.S.C. 2903, and designate in writing, as may be necessary, officers and employees of the USUHS to perform that function.

E2.1.1.4. Establish a USUHS Incentive Awards Board and pay cash awards to, and incur necessary expenses for the honorary recognition of, civilian employees of the Government whose suggestions, inventions, superior accomplishments, or other personal efforts, including special acts or services, benefit or affect the USUHS or its subordinate activities, in accordance with 5 U.S.C. 4503; Office of Personnel Management (OPM) regulations; and DoD 1400.25-M, "DoD Civilian Personnel Manual (CPM)," Chapter 400, Subchapter 451, "Awards," December 1996, authorized by DoD Directive 1400.25, November 25, 1996.

E2.1.1.5. Maintain an official seal and attest to the authenticity of official USUHS records under that seal.

E2.1.1.6. Establish advisory committees and employ part-time advisors, as approved by the Secretary of Defense, for the performance of USUHS functions,

consistent with the 10 U.S.C. 173, 5 U.S.C. 3109(b), and DoD Directive 5105.4, "Department of Defense Federal Advisory Committee Management Program," September 5, 1989.

E2.1.1.7. In accordance with Executive Order (E.O.) 10450, "Security Requirements for Government Employment," April 27, 1953; E.O. 12333, "United States Intelligence Activities," December 4, 1981; and E.O. 12968, "Access to Classified Information," August 4, 1995; and DoD Directive 5200.2, "DoD Personnel Security Program (DoDSP)," April 9, 1999, as appropriate:

E2.1.1.7.1. Designate any position in the USUHS as a "sensitive" position.

E2.1.1.7.2. Authorize, in case of an emergency, the appointment of a person to a sensitive position in the USUHS for a limited period of time and for whom a full field investigation or other applicable investigation, including the National Agency Check, has not been completed.

E2.1.1.7.3. Initiate personnel security investigations, and, if necessary, in the interest of national security, suspend a security clearance for personnel assigned, detailed to, or employed by the USUHS. Any action under this paragraph shall be taken, in accordance with procedures prescribed in DoD 5200.2-R, "DoD Personnel Security Program," January 1987, authorized by DoD Directive 5200.2, April 9, 1999.

E2.1.1.8. Act as the agent for the collection and payment of employment taxes imposed by Chapter 21 of the Internal Revenue Code of 1954, as amended; and, as such agent, make all determinations and certifications required or provided for under Section 3122 of the Internal Revenue Code of 1954, as amended, and Sections 205(p)(1) and 205(p)(2) of the "Social Security Act," as amended (42 U.S.C. 405(p)(1) and 405(p)(2)), about USUHS employees.

E2.1.1.9. Authorize and approve the following:

E2.1.1.9.1. Temporary duty travel for military personnel assigned or detailed to the USUHS, in accordance with the Joint Federal Travel Regulations (JFTR), Volume 1, "Uniformed Service Members," current edition.

E2.1.1.9.2. Travel for USUHS civilian personnel, in accordance with the Joint Travel Regulations (JTR), Volume 2, "DoD Civilian Personnel," current edition.

E2.1.1.9.3. Invitational travel to non-DoD employees whose

consultative, advisory, or other highly specialized technical services are required in a capacity that is directly related to, or with, USUHS activities, in accordance with the JTR, Volume 2, "DoD Civilian Personnel," current edition.

E2.1.1.9.4. Overtime work for the USUHS civilian personnel, in accordance with 5 U.S.C. Chapter 55, Subchapter V, and applicable OPM regulations.

E2.1.1.10. Approve the expenditure of funds available for travel by military personnel assigned or detailed to the USUHS for expenses incident to attendance at meetings of technical, scientific, professional, or other similar organizations in such instances when the approval of the Secretary of Defense, or designee, is required by 37 U.S.C. 412 and 5 U.S.C. 4110 and 4111.

E2.1.1.11. Develop, establish, and maintain an active and continuing Records Management Program under 44 U.S.C. 3102 and DoD Directive 5015.2, "DoD Records Management Program," April 11, 1997.

E2.1.1.12. Utilize the Government purchase card for making micro-purchases of material and services, other than personal services, for the USUHS, when it is determined more advantageous and consistent with the best interests of the Government.

E2.1.1.13. Authorize the publication of advertisements, notices, or proposals in newspapers, magazines, or other public periodicals, as required for the effective administration and operation of the USUHS, consistent with 44 U.S.C. 3702.

E2.1.1.14. Establish and maintain, for the functions assigned, an applicable publications system for the promulgation of common supply and service regulations, instructions, and reference documents, and changes thereto, under the policies and prescribed procedures in DoD 5025.1-M, "Department of Defense Directives System Procedures," August 1994, authorized by DoD Directive 5025.1, June 24, 1994.

E2.1.1.15. Enter into support and service agreements with the Military Departments, the other DoD Components, and the other Government Agencies, as required for the effective performance of USUHS functions and responsibilities.

E2.1.1.16. Enter into and administer contracts, directly or through a Military Department, a DoD contract administration services component, or other Federal Agency, as applicable for supplies, equipment, and services required to accomplish the mission of the USUHS. To the extent that any law or E.O. specifically limits the exercise of such authority to persons at the Secretariat level, such authority shall be

exercised by the applicable Under Secretary of Defense or Assistant Secretary of Defense.

E2.1.1.17. Establish and maintain appropriate property accounts for the USUHS, and appoint Boards of Survey, approve reports of survey, relieve personal liability, and drop accountability for USUHS property in the authorized property accounts that is lost, damaged, stolen, destroyed, or otherwise rendered unserviceable, in accordance with applicable laws and regulations.

E2.1.1.18. Promulgate the necessary security regulations for the protection of property and places under the jurisdiction of the President of the USUHS, under DoD Directive 5200.8, "Security of DoD Installations and Resources," April 25, 1991.

E2.1.1.19. Exercise the authority delegated to the Secretary of Defense by the Administrator of the General Services Administration for the disposal of surplus personal property.

E2.1.2. The delegations of authority provided by paragraph E2.1.1, above, are also subject to the following, in order of precedence:

E2.1.2.1. The authority, direction, and control of the ASD(HA).

E2.1.2.2. The management direction and control of the USUHS Executive Committee.

E2.1.2.3. Regulations and procedures of the DoD Executive Agent, applicable to the USUHS, under section 7.2. of this Directive, for administration of the USUHS.

E2.1.3. The President of the USUHS may redelegate those authorities, as applicable, and in writing, except as otherwise specifically indicated in paragraph E2.1.1. through subparagraph E2.1.2.3., above, or as otherwise provided by law or regulation.

CHARTER

**THE BOARD OF REGENTS
OF THE
UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES**

A. **Official Designation:** The Advisory Committee shall be known as the Board of Regents of the Uniformed Services University of the Health Sciences (USUHS). As an advisory committee, the Board will be governed by the provisions of the Federal Advisory Committee Act (FACA), the GSA Final Rule (41 C.F.R. Part 101-6), and DoD Directive 5105.4, the "DoD Federal Advisory Committee Management Program."

B. **Objective and Scope of Activity:** To provide advice and guidance to the Secretary of Defense through the Assistant Secretary of Defense for Health Affairs for the operation of the Uniformed Services University of the Health Sciences. To assure that said operation is in the best tradition of academia and in compliance with the appropriate accreditation authorities.

C. **Period of Time Required:** This Committee is established pursuant to 10 U.S.C. 2112 et seq. and exists indefinitely.

D. **Official or Sponsoring Proponent to Whom the Committee Reports:** The Secretary of Defense through the Assistant Secretary of Defense for Health Affairs.

E. **Support Agency:** The Uniformed Services University of the Health Sciences.

F. **Duties and Responsibilities:**

1. The business of the University shall be conducted by the Secretary of Defense through the Assistant Secretary of Defense for Health Affairs and the USUHS Executive Committee with the advice of the Board of Regents (hereinafter referred to as the "Board") with funds appropriated for and provided by the Department of Defense within the Defense Health Program. The Board shall consist of

- a. nine persons outstanding in the fields of health and health education who shall be appointed from civilian life by the President of the United States, by and with the advice and consent of the Senate;
- b. the Secretary of Defense, or designee, who shall be an ex-officio member;
- c. the Surgeons General of the Uniformed Services, who shall be ex-officio members; and
- d. the person referred to in subsection (4).

2. The term of office for each member of the Board (other than an ex-officio member) shall be six years except that

a. any member appointed to fill a vacancy occurring before the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term;

b. any member whose term of office has expired shall continue to serve until his successor is appointed.

3. One of the members of the Board (other than an ex-officio member) shall be designated by the President as Chairman and shall be the presiding officer of the Board.

4. The Board shall provide advice regarding the appointment of a President of the University (hereinafter in this charter referred to as the "President") who shall also serve as a non-voting ex-officio member of the Board. The Board shall also provide advice regarding the appointment of a Dean of the Medical School and Dean of the Graduate School of Nursing.

5. Members of the Board (other than ex-officio members) while attending conferences or meetings or while otherwise performing their duties as members shall be entitled to receive compensation at a rate to be fixed by the Secretary of Defense, but not exceeding \$100.00 per diem and shall also be entitled to receive an allowance for necessary travel expenses while so serving away from their place of residence.

6. The Board may recommend academic titles, as appropriate, upon military and civilian members of the faculty. The Board may recommend the awarding of appropriate academic degrees to successful candidates.

7. The Board is authorized to recommend negotiation of agreements with agencies of the Federal Government to utilize on a reimbursable basis appropriate existing Federal medical resources located in or near the District of Columbia. Under such agreements the facilities will retain their identities and basic missions. The Board is also authorized to recommend affiliation agreements with an accredited university or universities. Such agreements may include provisions for payments for educational services provided students participating in Department of Defense educational programs.

8. The Board may recommend establishment of postdoctoral, postgraduate, and technological institutes.

9. The Board may recommend establishment of programs in continuing medical education for military members of the health professions to the end that high standards of health care may be maintained within the military medical services.

10. The Board may recommend to the Assistant Secretary of Defense for Health Affairs that the University, upon approval of the Secretary of Defense, may enter into agreements with foreign military medical schools for reciprocal education programs under which students at the University receive specialized military medical instruction at the foreign military medical school and military medical personnel of the country of such medical school receive specialized military medical instruction at the University. Any such agreement may be made on a reimbursable basis or a nonreimbursable basis.

11. In carrying out the specific functions listed above and in performing other activities, the Board shall serve as the primary advisor to the Secretary of Defense, to the Assistant Secretary of Defense (Health Affairs), to the USUHS Executive Committee, and to the President of USUHS concerning academic affairs of the University.

G. **Estimated Annual Operating Costs and Estimated Man-Years:** \$186,700.00; 2.2 FTE

H. **Number of Meetings:** This Committee is established by statute, 10 U.S.C. 2112 et seq., and shall meet at least four (4) times per year and as often as the Secretary or Chairperson of the Board shall deem necessary to conduct University business.

I. **Termination Date:** The Committee by statute has no termination date (Cf Sec. 8091, P.L. 101-511, DoD Appropriations Act, 1991).

J. **Date Charter is Filed:** April 4, 2003

**Bylaws
of the
Uniformed Services University of the Health Sciences
Board of Regents**

Article I

Name

The Advisory Committee shall be known as the Board of Regents of the Uniformed Services University of the Health Sciences (USUHS).

Official Designation

As a federal advisory committee, the Board will be governed by the provisions of the Federal Advisory Committee Act (FACA), the GSA Final Rule (41 C.F.R. Part 101-6), DoD Directive 5105.4, "Federal Advisory Committee Management Program," and DoD Directive 5105.45, "Uniformed Services University of the Health Sciences."

Article II

Purpose and Objective

- A. The purpose of the Board of Regents shall be to provide advice and guidance to the Secretary of Defense through the Assistant Secretary of Defense for Health Affairs and also to the USUHS Executive Committee for the operation of the Uniformed Services University of the Health Sciences.
- B. To assure that said operation is in the best tradition of academia and in compliance with the appropriate accreditation authorities.
- C. Other specific purposes as identified in DoD Directive 5105.45.

Article III

Members

The Board shall consist of:

- A. Nine persons, outstanding in the fields of health and health education, who shall be appointed from civilian life by the President of the United States, by and with the advice and consent of the Senate;
- B. The Secretary of Defense, or designee, who shall be an ex-officio Member;
- C. The Surgeons General of the Uniformed Services, or their designees, who shall be ex-officio Members; and
- D. The President/Dean of the University who shall also serve as a non-voting ex-officio Member of the Board.

Term of Office

The term of office for each Member of the Board (other than an ex-officio Member) shall be six years except:

- A. Any Member appointed to fill a vacancy, occurring before the expiration of the term for which his predecessor was appointed, shall be appointed for the remainder of such term;
- B. Any Member whose term of office has expired shall continue to serve until a successor is appointed. These appointments will be renewed annually on the anniversary of the original appointment date.

Appointment of Chair

One of the Members of the Board (other than ex-officio Members) shall be designated by the President of the United States as Chair and shall be the Presiding Officer of the Board. The term of the Chair shall continue until a successor is appointed.

Selection of Vice-Chair

The Chair shall appoint a person to serve as Vice Chair.

Article IV

Duties and Responsibilities

- A. The Board shall advise the Secretary of Defense, through the Assistant Secretary of Defense, regarding the appointment of the President of the University and the appointments of Deans to the School of Medicine and the Graduate School of Nursing, and approve the nomination from the Deans of the Schools of the Department Chairs. (See U.S. Code Title 10, Section 2113, attached.)
- B. The Board shall be informed by the President of the University of appointments of associate deans and assistant deans.
- C. The Board shall recommend the awarding of appropriate academic degrees to successful candidates.
- D. The Board will ensure that the University maintains appropriate accreditation requirements.
- E. The Board shall act upon recommendations made by the Committees on Appointments, Promotion, and Tenure.
- F. The Board shall act upon recommendations made to establish new academic programs. A reading will occur when a proposal is presented; action will be taken at the next regularly scheduled subsequent meeting.
- G. The Board shall perform other duties as deemed appropriate and within its charter.

Article V

Advisors

- A. The Deans of the Schools are advisors to the Board.
- B. The Commanders of affiliated teaching hospitals are advisors to the Board.
- C. A military advisor to the Board will provide guidance from an operational perspective.
- D. The Board may invite other individuals to be advisors.

Article VI

Committees

A. Executive Committee of the Board of Regents

Designation

The Board shall designate a body as the Executive Committee.
The Executive Committee shall report to the Board.

Purpose

The Committee shall be responsible for conducting Board business between Board meetings. Actions taken by the Committee shall be submitted for ratification at the next regularly scheduled meeting.

Membership

The Committee will be composed of:

- a. Chair, Board of Regents
- b. Vice Chair, Board of Regents
- c. Chair, USU Executive Committee
- d. Two members selected by the Board
- e. President, USU

Meetings

The Executive Committee of the Board of Regents will meet either at the call of the Chair or at the request of any two members other than the Chair. Meetings may be held in person or via conference call.

B. Ad Hoc Committees

Designation

The Board, as a body, shall designate ad hoc committees as necessary.

Purpose

Each such ad hoc committee shall be responsible for in-depth consideration of assigned Board agenda items and/or special projects between scheduled meetings.

Membership

The Chair of the Board of Regents will appoint ad hoc committee members.

Meetings

Each ad hoc committee will meet either at the call of its Chair, or at the request of any two members other than the Chair of the committee. Meetings may be held in person or via conference call.

Article VII

General Procedures

A. Regular Meetings

- (1) The Board will hold at least four (4) meetings in an annual period from October 1 to September 30, or as often as the Secretary of Defense or Chair of the Board shall deem necessary to conduct University business.
- (2) Unless otherwise determined by the Board, meetings will be held in the Board of Regents conference room at the University, 4301 Jones Bridge Road, Bethesda, MD 20814.

B. Additional Meetings

- (1) Additional meetings will be called by the Executive Secretary upon the direction of the Chair, the President of the University, or written request of three or more Regents.
- (2) Additional meetings of the Board will be held at such times and places as will be specified in the notice of the meeting.

C. Notice of Meetings

- (1) Notice of all meetings of the Board shall be sent by the Secretary to each Regent by mail, fax, electronic mail (e-mail), or telephone.

- (2) The Secretary shall mail a notice not less than fifteen (15) days before any regular meeting. Faxing, e-mailing, or telephoning a notice shall be done not less than seven (7) days before a regular meeting.
- (3) The recital by the Secretary in the minutes that notice was given shall be sufficient evidence of the fact.
- (4) Public Announcement of the meetings of the full Board will appear in the Federal Register as provided in the Government in the Sunshine Act. (5 U.S.C. 552b(e)(3))

D. Quorum

A majority of all Members will constitute a quorum of the Board. As currently constituted, a quorum means at least eight (8) members must be present in person or via electronic means.

E. Voting

- (1) During a meeting, if a quorum is called for by a member and found not to be present, no further business may be transacted.
- (2) During a meeting, issues will be determined by voice balloting, unless an individual Member requires a written ballot.
- (3) The Chair of the Board is a Member of the voting assembly and has the right to vote as any other Member when the vote is by ballot.
- (4) Unless otherwise specified, a simple majority vote will determine matters of issue before the Board. In the event of a tie vote, the proposed resolution is lost.
- (5) At the direction of the Chair, action may also be taken by a majority of the Members by notation voting (that is to say by voting on material circulated to the Members individually or serially, or by polling of Members individually or collectively by mail, telephone, fax, e-mail or similar procedure). Such action will be reported by the Secretary at the next Board Meeting.
- (6) The Secretary of Defense, or the Secretary's designee, is authorized to vote.

- (7) The Surgeons General of the Uniformed Services, or their duly appointed designees, are authorized to vote. The President/Dean of the University is precluded by DoD Directive 5105.45 from voting.

F. Order of Business

The order of business will be at the discretion of the Chair unless otherwise specified by the Board.

G. Rules of Order

In the determination of all questions of parliamentary usage, the decision of the Chair or presiding officer will be based upon the latest available revision of "Robert's Rules of Order."

Article VIII

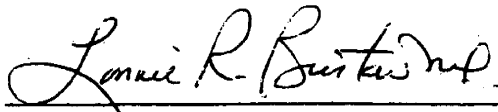
Amendment of Bylaws

A. Amendments

These Bylaws may be amended at any meeting of the Board of Regents as long as each proposed amendment has been provided to Members at least 60 days before the next scheduled meeting. Amendments will take effect by the affirmative vote of two-thirds (2/3) of the Members present.

Effective Date:

These Bylaws are effective February 6, 2001.



Lonnie R. Bristow, M.D., Chair, Board of Regents

CHARTER

THE EXECUTIVE COMMITTEE OF THE UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

- A. **Official Designation:** The committee shall be known as the Executive Committee of the Uniformed Services University of the Health Sciences. The committee shall be governed by the provisions of Department of Defense Directive 5105.18, "DoD Committee Management Program," February 8, 1999.
- B. **Objective and Scope of Activity:** To provide for the management and supervision of the Uniformed Services University of the Health Sciences. To assure that the operation of the University is in compliance with appropriate Department of Defense Directives, Instructions and Regulations. To ensure the President of the University shall have execution authority direction and control of USUHS and report to the Executive Committee. To facilitate accomplishment of the function's of the ASD(HA), the Surgeons General, and the Executive Agent as described in DoD Directive 5105.45, "Uniformed Services University of the Health Sciences."
- C. **Period of Time Required:** This Committee is established pursuant to Program Budget Decision 711 of December 17, 1997 and will exist until rescinded by the Secretary of Defense.
- D. **Official of Sponsoring Proponent to Whom the Board Reports:** Assistant Secretary of Defense (Health Affairs).
- E. **Duties and Responsibilities:**
1. The business of the University shall be conducted under the management and supervision of the Executive Committee with Defense Health Program and other funds appropriated for and provided by the Department of Defense through the Department of the Navy as the Executive Agent.
 2. The Executive Committee shall consist of the Surgeons General of the Military Services. The membership will determine the Chair.
 3. The Executive Committee will be guided by the advice of the USUHS Board of Regents on academic affairs.
 4. The Executive Committee will oversee matters involving programming, budgeting and funding execution. In this regard, budgets approved by the Executive Committee will be presented by the Executive Agent to the Defense Health Program as a part of its responsibility for the planning, programming and budgeting execution system of the USUHS.

- F. Signature Authority: The Chair has authority to transmit decisions upon which the Executive Committee has reached unanimity. In the absence of a member of the Executive Committee, the representative of a Surgeon General is authorized to participate in the decision-making process.
- G. Number of Meetings: The Executive Committee shall meet at the call of the Chair but not less than quarterly.

Charter Approved, December 18, 2000:



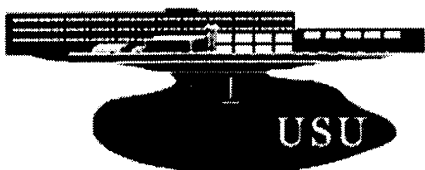
VADM Richard A. Nelson
Surgeon General of the Navy
Chair



LtGen Paul K. Carlton Jr.
Surgeon General of the Air Force
Member



LTG James B. Peake
Surgeon General of the Army
Member



Strategic Plan

<i>Strategic Plan- 2004</i>	A Message from the President
<i>References</i>	The University Strategic Plan has become the core document with which the University is formulating its future. In accordance with good management practices, we have aligned our plan with the Department of Defense Medical Health System (MHS) Business Plan.
<i>History</i>	In April 2001, the University senior staff, teaching hospital representatives, Chair of the Board of Regents, and representatives of the Surgeons General held a very productive three-day retreat to review our strategic plan. We examined our strengths, weaknesses, opportunities, and threats. As a result, we identified seven new goals and over forty objectives, of which 28 were selected to be worked on in FY 2002. Since last year, over 200 people have been working on these objectives to meet our mission of "Learning to care for those in harm's way."
<i>Current Briefing</i>	
<i>Mission and Vision</i>	I believe that a useful plan is always a work-in-progress. We will constantly refer to the strategic plan as our beacon, but will adjust a few points of the compass as the University deals with the changing environment.
<i>Guiding Principles</i>	I invite you to read this plan, coming back occassionally as new objectives and strategies are added. Please feel free to share your thoughtful comments.

This is our strategic plan to guide the University in the 21st century. This strategic plan has no value if it is filed or posted and ignored; it becomes an effective and dynamic plan directed towards the University's vision when we are all involved in its creation and maintenance. Your input is important, welcomed, and appreciated.

James A. Zimble, M.D.
President

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Questions or comments about this site?
Contact our webmaster at: webmaster@usuhs.mil
Last update: 04/02/04



USU Strategic Plan

Report of the USU SP Planning
Committee

James G. Smirniotopoulos, M.D., Chair

Feedback Form

USU Strategic Planning Committee

- ◆ Greg Argyros
- ◆ Pete Esker
- ◆ COL Gauseman » Tellitocci
- ◆ Neil Grunberg
- ◆ Charlie Mannix » Barry Wolcott
- ◆ CAPT Jane Mead
- ◆ Lee Poth
- ◆ COL Serio
- ◆ J. Smirniotopoulos, Chair

Feedback Form

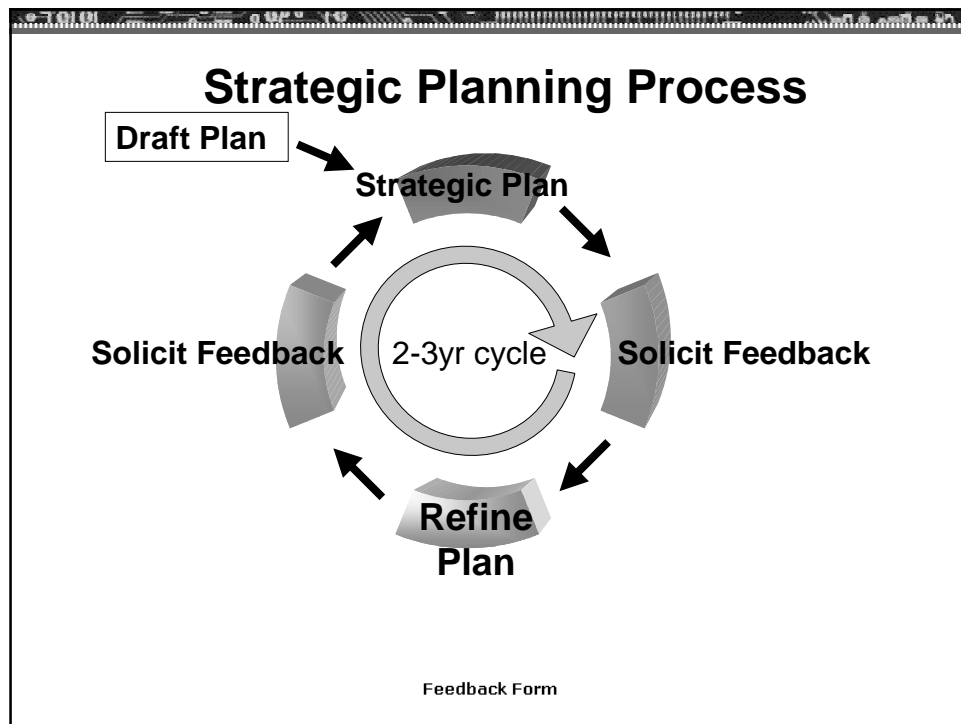


Feedback Form

Definitions for Development of SP

- ◆ Mission and Vision:
 - ◆ Why do we exist (**Mission**)
 - ◆ Who do we want to be (**Vision**)
- ◆ Goals
 - ◆ Major **results or targets** to achieve the Vision
- ◆ Objectives
 - ◆ Measurable **quantification** of the Goals
- ◆ Strategies
 - ◆ Approach to **achieving** the Objectives
- ◆ Tactics
 - ◆ The **detailed methods** for achieving each Strategy

Feedback Form



- ### Tasks Accomplished
- ◆ Website for USU Strategic Plan
 - ◆ <http://www.usuhs.mil/strat/index.html>
 - ◆ Reconciliation of New SP with Current Plan
 - ◆ Alignment of New Proposal with DoD HA Plan
 - ◆ As available from HA briefing and Website
 - ◆ Finalize Priorities of the Five Goals
 - ◆ Finalize Wording of the Goals
 - ◆ Presentation to USU VP's and HMJ Leaders
 - ◆ Goal Champions Selected
 - ◆ Presentation to USU Admin Officers
 - ◆ Presentation to Faculty Senate
- Feedback Form

Learning to Care for those in harm's way

Medical Readiness Training

USU Strategic Plan

USU Strategic Plan

Report of the USU SP Planning Committee
James G. Smirniotopoulos, M.D., Chair

[About USU](#)
[Admissions](#)
[Students](#)
[Alumni](#)
[Faculty](#)

- [President's Welcome](#)
- [F. Edward Hébert School of Medicine](#)
- [Graduate School of Nursing](#)
- [Graduate Education](#)
- [Graduate Medical Education](#)
- [AF Radiobiology Research Inst. \(AFRI\)](#)
- [Recruitment and Diversity](#)

[Academic Listing](#)
[Administrative Listing](#)
[Calendar of Events](#)
[Continuing Ed. for Healthcare Professionals](#)
[USU Plan Of The Week](#)
[Henry Jackson Foundation](#)
[LRC \(Library\)](#)
[Strategic Plan Information](#)

[News Releases](#)
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Feedback Form

USU SP Website

USU

Strategic Plan- May, 03

References

History

Current Briefing

Mission and Vision

Guiding Principles

A Message from the President

The University of the South Florida is the core document of the University. In accordance with the Department of Defense Medical Health System (MHS) Business Plan.

In April 2001, the University senior staff, teaching hospital representatives, Chair of the Board of Regents, and representatives of the Surgeons General held a very productive three-day retreat to review our strategic plan. We examined our

[Military Health System Strategic Plan](#)
[Army Modernization Plan](#)
[Department of the Navy Strategic Plan](#)
[Air Force Strategic Plan](#)

Feedback Form

* Five Goals for USU SP

- ◆ Education
- ◆ Military Service
- ◆ Research
- ◆ Leadership
- ◆ Stewardship

* Co-equal priorities, per Dr. Zimble

Feedback Form

Education

Laughlin / Hinton-Walker/ Mead

- ◆ To meet the Nation's needs as the preferred source for uniformed healthcare education and training

Feedback Form

Education Objectives: USU

- ♦ Will provide outstanding education to our students, focused on Military Readiness and Homeland Defense.
- ♦ Will develop and deploy Continuing Health Education and distance learning programs to enhance the competency of Military Healthcare professionals in the Military Unique Curriculum.
- ♦ Will coordinate with other agencies to develop and conduct specialized training for health care professionals in:
 - ♦ *Disaster and Humanitarian Relief*
 - ♦ *Weapons of mass destruction*
 - ♦ *Traumatic and Post-traumatic stress*
 - ♦ *Preventive Medicine for mission readiness*
 - ♦ *Force Health Protection and Healthy Lifestyles*
- ♦ Will establish a center for "smart classrooms" taking advantage of new technologies for teaching
- ♦ All programs will meet or exceed national standards for accreditation.
- ♦ Will partner with senior service colleges to create a School of Leadership and Professional Development.

Education Strategy/metric

- ♦ USU SOM graduates will excel during their PGY-1 year
- ♦ USU GSN graduates will pass certification exams
- ♦ Promote a Community of Scholars to encourage Academic Excellence
- ♦ Develop and Deploy Distance Learning Programs
 - ♦ GSN, PMB courses
 - ♦ Web-based CME (*MedPix*)
- ♦ Use Smart Classrooms and New Technologies for Teaching
 - ♦ Internet 2
 - ♦ Patient Simulation (including the Simulation Center)
- ♦ A center for Emerging Infectious Disease (EID) will be developed in conjunction with CDC, USAMRIID and WRAIR
- ♦ Will earn the maximum duration of accreditation at each accreditation cycle by Self-Study

Feedback Form

Suggested Changes

Feedback Form

Military Service:

Schwartz / Hepler

- ◆To provide graduates, faculty, and staff who serve as experts in the medical response to Disasters, War, and Humanitarian Crises

Feedback Form

Military Service Objectives: USU

- ◆ Will produce skilled professionals with special orientation to those aspects of Medicine, Science, and Nursing to support the military and federal healthcare system.
- ◆ Emphasize and Participate in the direct care component of Tricare
 - ◆ Provide Patient Care Services at MTF's
 - ◆ Provide Consultation to DoD and other Federal providers
 - ◆ Patient Safety Program
 - ◆ Promote Force Health Protection and Healthy Lifestyles
 - ◆ Support CDHAM, CCRC
- ◆ Provide a military community emphasizing officership

Feedback Form

Military Service Strategy/metric

- ◆ Emphasize the direct care component of Tricare
- ◆ Provide Patient Care Resources
 - ◆ Military treatment facilities
 - ◆ Civilian Tx facilities (NIH, Free Clinic)
- ◆ Consultation on Difficult Cases
 - ◆ MTF's
 - ◆ Army Claims Service, etc.
- ◆ Develop Military Community
 - ◆ Field Exercises emphasizing Military aspects of Healthcare
 - ◆ Kerkeshner
 - ◆ Bushmaster
 - ◆ Award/Retirement Ceremonies
 - ◆ Dining in

Feedback Form

Suggested Changes

Feedback Form

Research:

Kaminsky / Jarrett / Schinski

- ◆ To be a leader in basic, clinical, and health services research to improve healthcare, to protect, sustain and enhance the fighting force and secure the public's health.

Feedback Form

Suggested Changes

- ◆ To be a leader in biomedical science by promoting inquiry, creativity, and innovations for the improvement of healthcare to protect, sustain and enhance the fighting force and secure the public's health

Feedback Form

Research Objectives: USU

- ◆ Will emphasize Research and Development relevant to military, federal, and homeland security needs.
Will develop interdisciplinary programs focused on outcomes research.
- ◆ Will develop programs for Pedagogical research.
Will develop a repository for collecting and analyzing combat casualty data.
- ◆ Will emphasize research objectives established by service and Joint Service medical requirement documents.
- ◆ Will ensure regulatory compliance in all aspects of healthcare and basic science research.
- ◆ Will develop Institutional Research for self study

Feedback Form

Suggested Changes

- ◆ To promote excellence and provide tools for innovative biomedical research.
- ◆ To provide tools for training our faculty in clinical research and translational research.
- ◆ Encourage pairing of our strong programs in interdisciplinary research.
- ◆ Will emphasize research objectives established by Service and Joint Service medical requirements.
- ◆ To develop programs in teaching research.
- ◆ Will ensure regulatory compliance in all aspects of biomedical research.
- ◆ Enhanced Research funding for new investigators

Feedback Form

Leadership

Serio /

- ◆ To develop and provide uniformed and federal leaders for national healthcare service focused on mission readiness and Homeland Security.

Feedback Form

Leadership Objectives: USU

- ◆ Will mentor and train our Students and Faculty to become military and federal healthcare leaders.
- ◆ Faculty and Alumni will achieve positions of Leadership in the Department of Defense and in the Federal Government.
- ◆ Faculty and Alumni will achieve positions of leadership in professional and scientific organizations.
- ◆ Will provide Military Mentorship for Career Development and Promotion
- ◆ Outreach to HPSP students

Feedback Form

Suggested Changes

Feedback Form

Stewardship

Rice/Dix/

- ◆ To protect and enhance the human and physical resources of the University, optimize productivity, promote a sense of family and community, while emphasizing flexibility in response to changing world conditions.

Feedback Form

Stewardship Objectives: USU

- ◆ Will recruit, reward, and retain outstanding and diverse Students, Faculty, and Staff.
- ◆ Develop and Maintain connections to our Alumni
- ◆ Will work to ensure that everything that we do is characterized by the principles of ethics and accountability.
- ◆ Will aggressively seek to secure financial and institutional support to achieve the goals and objectives of this strategic plan as outlined in the above sections on:
 - ◆ Education
 - ◆ Military Service
 - ◆ Research
 - ◆ Leadership

Feedback Form

Stewardship Strategy/metric

- ◆ Will have a comprehensive faculty and staff development and mentoring program
- ◆ Encourage telework and telecommuting to meet Federal local government goals
 - ◆ *"the Metropolitan Council of Governments (COG) ... declaring that 20% ... must engage in telework one or more days a week by 2005"*
 - ◆ *"25% of the federal workforce eligible to telework do to the maximum extent possible without diminished employee performance."*
- ◆ Obtain state-of-the-art instrumentation for the support of current research future research
- ◆ Promote Health and Happiness for faculty, staff, and students
 - ◆ Create a "family friendly" environment
 - ◆ Promote healthy lifestyles for everyone at USU

Feedback Form

Suggested Changes

Feedback Form

Tasks Ahead

- ◆Concurrence and Consensus from BOR
- ◆Dissemination of New Proposal to Faculty, Students, and Staff
 - ◆Through USU Leadership and VP's (done)
 - ◆Through AO meetings (done)
 - ◆Through Faculty Senate (done)
 - ◆Through Dept Chairs and Activity Heads
 - ◆Through Activity and Dept Staff Meetings

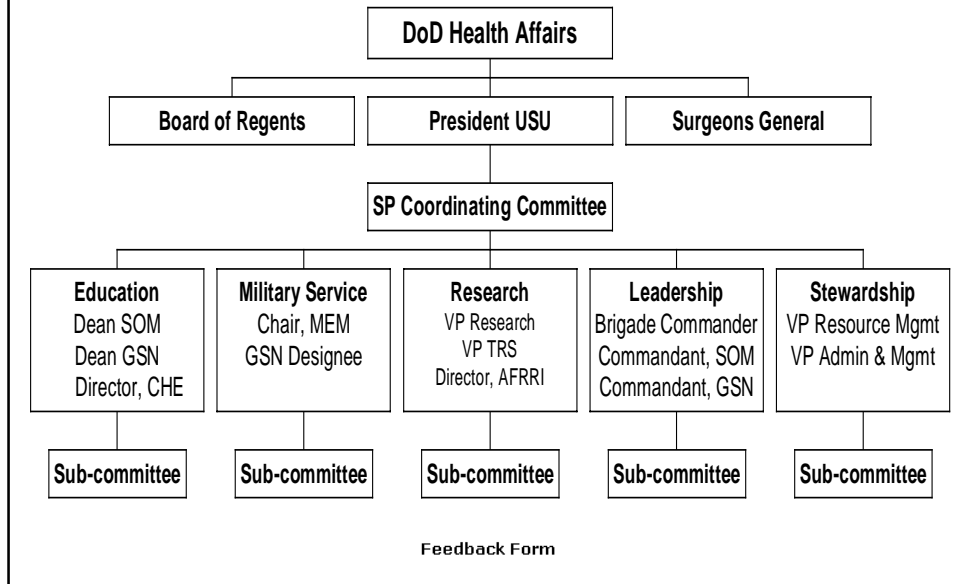
Feedback Form

Tasks Ahead

- ◆Concurrence and Consensus from Faculty and Staff
- ◆Concurrence from Students and Alumni
- ◆Develop Detailed Strategies and Metrics to Achieve Objectives under the leadership of the Goal Tenders

Feedback Form

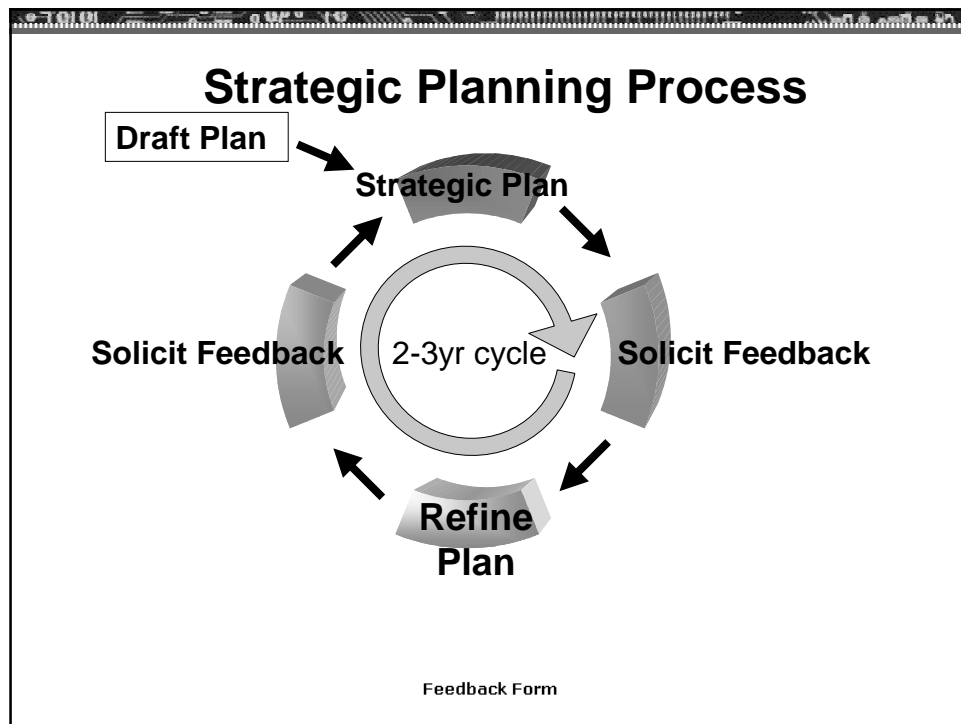
USU SP: Organizational Chart



The End ?

No -
Only The Beginning

Feedback Form



Theory and Practice

In Theory ... Practice and Theory are the same.

In Practice, they are not.

Yogi Berra

Feedback Form

APPENDIX C

Selected Examples of Billeted and Off-Campus Members of the USU Departments, Programs and Activities Receiving Special Recognition - 2003.

Anatomy, Physiology and Genetics - School of Medicine.

Department Overview. Training the next generation of the military's young doctors requires a firm grounding in anatomy and physiology. The Department of Anatomy, Physiology, and Genetics (APG) employs a *systems biology* approach that aids the student in *not missing the forest for the trees*. This is accomplished through a series of course modules. Students are offered a comprehensive, sequential, intellectually interesting and integrated curriculum for understanding tissue and organ function within a clinically relevant context. ***Introduction to Structure and Function*** introduces the student to cell classification, organelle function and cellular processes, followed by study of the gross anatomy of the human body. An emphasis is placed upon understanding anatomical relationships and the causes and functional consequences of anomalies arising from disease processes. Gross anatomical study of the head and neck region, neuroanatomy, and basic clinical neurology is taught in the second module, ***Clinical Head and Neck and Functional Neuroscience***. Clinical cases are presented and case studies are assigned to students to reinforce their understanding of neurological function. The students return to cellular and subcellular analysis in the third module, ***Structure and Function of Organ Systems***. This module presents an integrated approach to the functions of different cells and organ systems: the functions of muscle; heart; endocrine systems; kidney; respiration; gastrointestinal physiology; hematology; and, reproduction; and, basic principles are once more emphasized to underscore clinical relevance. The educational programs of APG are overwhelmingly lauded by medical and graduate students. In this past year, **Martha Johnson, Ph.D., Associate Professor, APG**, received the Outstanding School of Medicine (SOM) Civilian Educator Award from the SOM Class of 2003, at the 2003 USU Commencement Ceremonies. Also at commencement, **Juanita J. Anders, Ph.D., Associate Professor, APG**, was highly praised by the doctoral students for her excellence in teaching and mentoring, when she received the SOM Outstanding Biomedical Graduate Education Award.

The Department oversees other educational programs for medical and graduate education. In addition to faculty participation in graduate courses offered by the various Doctoral Programs of USU, APG faculty, in a collaborative project with the National Naval Medical Center's (NNMC) Department of Anesthesiology and the USU SOM Department of Anesthesiology, operates the Patient Simulation Laboratory (PSL). The PSL presents patient simulation-based clinical education for USU students and clinicians from local military facilities. To extend the reach of simulation, the PSL recently installed an ultra-high speed *Internet2* Advanced Distance Education Network, throughout USU, with links to the NNMC and the National Library of Medicine. APG faculty are also active members of USU interdisciplinary programs, to include the Molecular and Cell Biology and the Neuroscience Graduate Education Programs. Many graduate students in these programs are undertaking their thesis research in the Department. Future educational initiatives are in the planning stage. ***APG faculty are preparing a Clinical Genetics curriculum that will be an addition to the clinical course instruction of 4th-year medical students.***

Scholarly activities abound. The APG research programs employ a wide range of anatomical, electrophysiological, biochemical, cellular and molecular biological methods to address medical problems associated with neurodegenerative disorders such as: Multiple Sclerosis; Parkinson's Disease; Alzheimer's Disease; Down Syndrome; Canavan Disease; and, central and peripheral nerve injury. APG faculty also have active research programs in hypertension and cardiovascular pathophysiology, neuroimmune responses of gastrointestinal function, and understanding metabolic disorders such as Cystic Fibrosis and Diabetes. Studies within the Department focus on the regulation of neuronal gene expression, biological clock mechanisms, neuroendocrine secretory processes, the role of glial cells in CNS injury and disease, traumatic brain injury, hemorrhagic shock, neuronal regeneration and plasticity. Several programs employ state-of-the-art approaches, including cell therapy using engineered cells, gene therapy using viral and chemical vectors, knock-out and transgenic mouse models, microarray and mass spectrometry technologies. The Department's research funding is supported by the National Institutes of Health, the National Science Foundation, the United States Air Force, the Juvenile Diabetes Foundation, the Cystic Fibrosis Foundation, the Department of Defense/Veterans Head Injury Program, as well as the USU Intramural Grants Program.

Individual Contributions.

Harvey B. Pollard, M.D., Ph.D., Professor and Chair, USU SOM Department of Anatomy, Physiology and Genetics, has established the USU Center for Medical Genomics and Proteomics in the Department of APG. By his doing so, APG has become one of ten academic organizations in the United States to win substantial support (12.5 million dollars) from the National Institutes of Health (NIH) for the establishment of a Proteomics Center. The NIH contract has allowed the University to acquire a world-class set of mass spectrometers, as well as support personnel, to form the technical basis for proteomic research in the 21st Century. In terms of NIH funding, this moves APG into the ranks of the top twenty equivalent Departments in United States Medical Schools and provides a crucial research resource to the entire University; USU researchers all benefit from this valuable asset, as well as USU as an institution. The focus of the Center is on lung disease, with a special focus on the inflammatory flagship genetic disease of cystic fibrosis. One citizen in 20 carries one copy of the mutant gene for cystic fibrosis; and, it is the most common autosomal recessive fatal disease, in the United States. Information derived from the Center promises to impact on our understanding of more challenging, but less understood, inflammatory diseases of the lung such as asthma, and inflammatory processes in other parts of the body.

Juanita J. Anders, Ph.D., Associate Professor, and Kimberly Byrnes, Ph.D., USU SOM Department of Anatomy, Physiology and Genetics, President of the North American Association for Laser Therapy. Light of specific wavelengths can penetrate to different depths of the body. Through its absorption by a cellular photoreceptor, light can modulate basic cellular functions including energy (ATP) production and DNA, RNA, and protein synthesis. Therefore, light has the potential as a non-invasive therapy for deep tissue repair. Doctors Anders and Byrnes demonstrated that light could increase neuronal survival and regeneration in the injured peripheral nervous system. This work led to a series of experiments on the use of light as a non-invasive treatment for spinal cord injury (SCI). In the United States, approximately 230,000 individuals live with the effects of SCI; and, this number increases by 11,000 each year. SCI causes devastating disabilities due to the inability of axons, within the central

nervous system, to regenerate following an injury. While advances in emergency care and rehabilitation allow many SCI patients to survive, methods for reducing the extent of injury and for restoring function are still limited. Doctors Anders and Byrnes, in collaboration with Doctors Waynant and Ilev, colleagues from the Food and Drug Administration, identified that 810 nm light could penetrate to the depth of the spinal cord. Light treatment of injured spinal cord with an 810 nm, 150 mW (dosage = 1589 J/cm²) diode laser, acted as an immunosuppressant and improved axonal regeneration and functional recovery. This research suggested that light treatment is a novel and effective treatment for SCI; and, in 2003, it led to the filing of a Provisional Patent Application and licensing of this technology to PhotoThera, Incorporated.

Rosemary C. Borke, Vice Chair for Instruction, Professor, USU SOM Department of Anatomy, Physiology and Genetics. Professor Borke's Course, *Clinical Head and Neck and Functional Neuroscience*, has been a perennial favorite of the first-year medical students. She has made on-going improvements such as the inclusion of additional educational materials that stress clinical correlations, demonstrating the importance of a firm grounding in the basic sciences. Professor Borke has also produced compact disks (CDs) for instructional purposes in the classroom, as well as, for home study.

Sharon L. Juliano, Ph.D., Professor, USU SOM Department of Anatomy, Physiology, and Genetics. There are numerous disorders of neuronal migration into the neocortex. Impaired migration can lead to human dysfunctions that range from epilepsy to schizophrenia. Factors influencing cortical development and subsequent migration are both genetic and environmental; members of Sharon Juliano's laboratory (**Marcin Gierdalski and Sylvie Poluch**) have been using both genetic and epigenetic models to obtain better understanding of the impaired mechanisms of neuronal migration. They previously demonstrated that a short interruption of early cortical development, during gestation, could result in dramatic alterations in radial glial cells, which form an important scaffold for neurons migrating into and forming the cerebral cortex. In collaboration with colleagues from Harvard University, Doctors Juliano and Gierdalski determined that a protein of approximately 50 kDa is an endogenous factor in mammalian cortex, which is capable of reorganizing radial glial cells toward their normal morphology. They further established that the likely endogenous factor is neuregulin and that it acts through erbB receptors. The outcome of their studies may clarify both the mechanisms that produce neuronal migration disorders, during pregnancy, and the potential repair of these disorders by systemically investigating the factors involved in several structural and neurochemical elements that contribute to impaired migration. Their findings were published in a special issue of the Journal, Cerebral Cortex, which commemorated the current status of research on neocortical development.

Ignacio Provencio, Ph.D., Assistant Professor, USU SOM Department of Anatomy, Physiology and Genetics (APG); Mark D. Rollag, Ph.D., Professor, USU SOM Department of APG; Maria Castrucci, Ph.D., USU SOM Department of APG, and, Guisen Jiang, M.D., Research Assistant Professor. Jet lag is an extreme example of what happens when our daily biological clock is not synchronized to local time. Light perceived through the eyes is the primary mechanism by which the internal clock is reset. In 2002, Doctors Ignacio Provencio, Mark Rollag, and Maria Castrucci, from the Department of Anatomy, Physiology and Genetics, identified a new photosensory system in the

mammalian eye, which is responsible for resetting the internal 24-hour (circadian) clock. This discovery was recognized by the prestigious Journal, Science, as one of the *Top Ten Scientific Breakthroughs of 2002*. Thus, like the ear, which is required for hearing and balance, the eye also has a dual sensory function: vision and circadian clock resetting. The clock resetting apparatus of the eye is composed of a *photoreceptive net* of cells that contain a novel light-sensitive protein named melanopsin. Melanopsin was initially discovered in frog skin at USU, in 1998, by Doctors Provencio, Rollag, and Guisen Jiang, which in turn, paved the way to the discovery of the *photoreceptive net* in mammals. This past year, these USU investigators, in collaboration with colleagues from The Scripps Research Institute, the Genomics Institute of the Novartis Research Foundation, and Washington University, showed that melanopsin-containing cells of the *photoreceptive net* work in conjunction with the well-known rod and cone visual photoreceptors of the retina to reset the clock. This apparent integration of visual and non-visual light signaling, within the retina, has forced investigators to rethink how the retina processes some light information. Understanding how our internal daily clocks are reset will provide the basis for future pharmacologic or phototherapeutic strategies to ameliorate internal timing disturbances (chronopathologies) such as jet lag. In an age when the men and women of our military are immediately deployed into theaters of operation many time zones away, developing such strategies will prove to be extremely useful.

Biochemistry and Molecular Biology - School of Medicine.

Individual Contributions.

Paul D. Rick, Ph.D., Professor and Chair, USU SOM Department of Biochemistry and Molecular Biology, directed his long-term research interests at determining the mechanisms involved in the biogenesis and assembly of the outer membrane of Gram-negative bacteria. More specifically, he is interested in defining the genes and enzymes involved in the assembly of enterobacterial common antigen (ECA), a cell-surface glycolipid that is present in the outer membrane of all bacteria belonging to the family, *Enterobacteriaceae* (Gram-negative enteric bacteria). Using a combined genetic and biochemical approach, Doctor Rick has succeeded in defining many of the genes and enzymes involved in ECA assembly. Although the ECA was discovered, in 1962, its function has not been defined despite the efforts of many investigators. However, the occurrence of ECA only in Gram-negative enteric bacteria suggests that it serves an important function for these organisms. Indeed, data obtained in Doctor Rick's laboratory strongly suggests that it is required for the growth and survival of these organisms in their normal ecological niche; i.e., the gastrointestinal tract of animals and man. His research is funded by a grant from the National Institutes of Health; and, he continues to serve on the Editorial Boards of several scientific journals.

Peter D'Arpa, Ph.D., Assistant Professor, USU SOM Department of Biochemistry and Molecular Biology, studies *topoisomerase I*, an enzyme that is the molecular target of a widely used class of anti-cancer drugs. His laboratory studies how anti-cancer drugs affect *topoisomerase I* and lead to the elimination of cancer cells. Other research explores the molecular cell biology of *topoisomerase I* and *topoisomerase I-interacting proteins*. The goal of his research is to characterize the cellular functions of *topoisomerase I* and proteins that interact with it to ultimately improve therapies utilizing *topoisomerase I-targeting* anti-cancer drugs.

Saibal Dey, Ph.D., Assistant Professor, USU SOM Department of Biochemistry and Molecular Biology, works on a human protein (P-glycoprotein) found in the cell membranes of cancerous as well as normal cells. This protein removes structurally unrelated hydrophobic compounds from cells by acting as a pump. Since most of the anti-cancer and anti-microbial drugs are hydrophobic in nature, this protein prevents them from reaching their targets. Doctor Dey has been working on the mode of action of this protein and on the molecular mechanism by which this protein can be inactivated using pharmacological agents. The outcome of his study could improve the availability of chemotherapeutic drugs at their site of action and aid in the treatment of cancer and microbial diseases. Doctor Dey and colleagues published: *Functional Characterization of Glycosylation Deficient Human P-glycoprotein Using a Vaccinia Virus Expression System* in the Journal of Membrane Biology, Volume 173, pages 203-214; and, he also wrote a review on *Biricodar* in Current Opinion in Investigational Drugs, Volume 3, pages 818-823. During the past year, Doctor Dey was awarded a five-year RO1 grant from the National Institutes of Health for his studies on P-glycoprotein.

Teresa M. Dunn, Ph.D., Professor and Vice Chair, USU SOM Department of Biochemistry and Molecular Biology, studies complex lipid molecules in yeast that are found in cell membranes. Similar compounds in humans are found in the membranes of the brain and nerves. The human brain has several hundred varieties of these compounds. Several gene products (both enzymes and regulatory proteins) are required to synthesize these complex molecules. The discovery of these genes and their function in producing these molecules in yeast is made possible by genetic methods developed in Doctor Dunn's laboratory. This work will likely suggest what processes in the nerves or brain are affected or regulated by these molecules. Using a powerful genetic screen devised in her laboratory, many of the genes encoding the sphingolipid biosynthetic enzymes have been identified. During the past year, a grant to characterize the microsomal fatty acid elongating enzymes was awarded to Doctor Dunn by the National Science Foundation. Doctor Dunn continues to serve as a member of the Metabolic Biochemistry Review Panel for the National Science Foundation.

David A. Grahame, Ph.D., Associate Professor, USU SOM Department of Biochemistry and Molecular Biology, studies metal-containing enzymes in the Archaea, a genetically distinct group of microorganisms that provide insight into the early evolution of life on Earth. Doctor Grahame studies fundamental problems of how metals such as cobalt, iron and nickel function in several highly unusual enzyme systems. These processes are closely related to how cobalt acts in the anti-anemia vitamin B-12, and how iron functions in the body. These studies advance our understanding of metal-containing enzymes in metabolic, ecological, and environmental processes, and contribute to the use of microorganisms for bioremediation, agricultural, and biomedical applications. Doctor Grahame receives extramural research support from the Department of Energy and from the National Science Foundation. During the past year, Doctor Grahame received research support from the United States Army Soldier and Biological Chemical Command (SBCCOM) for a project on Biological Threat Agent Simulants.

Susan Haynes, Ph.D., Assistant Professor, USU SOM Department of Biochemistry and Molecular Biology, has identified proteins that regulate the production of gametes (eggs and sperm) in fruit flies. A major cause of human infertility is impaired sperm production. Because sperm develop similarly in flies and humans, these studies on fruit flies could lead to novel treatments to correct human male infertility and to the development of novel pharmacological agents for male contraception. Similarly, the protein that regulates egg production is conserved in humans, and understanding its role could have similar applications to human health. Doctor Haynes has served as the co-chair of two Washington area regional scientific groups: the RNA Club and the Drosophila Interest Group. She is a member of the Executive Committee of the Molecular and Cell Biology Graduate Program and has served on the thesis committees for students in the graduate program. Her research is funded by an extramural grant from the National Institutes of Health and an intramural grant from USU.

David S. Horowitz, Ph.D., Assistant Professor, USU SOM Department of Biochemistry and Molecular Biology, works on the molecular processes involved in the production of messenger RNA, which carries information from the cell's genes to form the blueprint for the synthesis of cellular proteins. When initially synthesized, the genetic information is encoded in a large linear polymer containing segments of information separated by non-information-bearing segments. Processing the RNA for the protein synthesis machinery of the cell requires the removal of the non-information segments and the

joining of the information-containing segments. How the many cellular macromolecules, that participate in this fundamental process, work together is necessary to understand protein production in cells. Doctor Horowitz receives extramural research support from the National Institutes of Health.

Daniel R. TerBush, Ph.D., Assistant Professor, USU SOM Department of Biochemistry and Molecular Biology, studies exocytosis in yeast. Exocytosis is the process whereby vesicles containing lipid and protein cargo bud off the trans Golgi and are targeted to, and fuse with, the plasma membrane. Exocytosis is highly regulated; and, exocytic vesicles only fuse at specific, localized domains on the plasma membrane. A multiprotein complex, termed the Exocyst, serves as a specific targeting patch for the exocytic vesicles and is required for their fusion at these specialized domains in yeast and in higher eukaryotes. The research has focused on understanding the role of a protein, Exo70p, in vesicular trafficking. Understanding the biochemical mechanism of how exocytic vesicles are specifically targeted to certain areas will help understand such basic processes as cellular differentiation, neurotransmission, and axon pathfinding. Doctor TerBush's research is funded by the National Science Foundation.

Xin Xiang, Ph.D., Assistant Professor, USU SOM Department of Biochemistry and Molecular Biology, studies how intracellular transport works. Cells move material from areas of assembly to areas of destination like a monorail on intracellular networks composed of protein tubules. A virus that infects a cell can use this pathway to transport its genes to the nucleus. Neuronal function requires movement of material produced in the nucleus to the nerve endings and back. A molecular motor, composed of several proteins, attaches to the transportable material and moves it to its destination. The understanding of which proteins are used to regulate the motor; attach cargo to it; and, transport and release the cargo area could lead to antiviral drugs or enhanced neuronal function. Doctor Xiang's extramural research is funded by the National Science Foundation.

Dermatology - School of Medicine.

Individual Contributions.

Leonard C. Sperling, M.D., COL, MC, USA, Professor and Chair, USU SOM Department of Dermatology, has authored a textbook entitled, Atlas of Hair Pathology with Clinical Correlations. This textbook was available for purchase in March of 2003 and was featured at the American Academy of Dermatology Meeting. The book contains 365 illustrations and is the first comprehensive review of the microscopic pathology of hair disease. It was published by Parthenon Publications.

Tom Darling, M.D., Ph.D., USU SOM Department of Dermatology, Director of the Sulzberger Laboratory for Dermatologic Research, co-authored the following book chapter in a new dermatology textbook, first presented at the American Academy of Dermatology Meeting in March of 2003: *Application of Molecular Biology to the Study of Skin*, Dermatology, 1st Edition, Harcourt Health Sciences, London, 2003.

Lieutenant Colonel (promotable) Scott A. Norton, Associate Professor, USU SOM Department of Dermatology, has been recognized as an authority on the use of smallpox vaccination. He is working closely with the Centers for Disease Control and the American Academy of Dermatology to develop guidelines for the administration of this vaccine.

Family Medicine - School of Medicine.

Departmental Activities.

The USU SOM Departments of Family Medicine and Medical and Clinical Psychology Establish the USU Center for Health Disparities Research and Education - Project EXPORT. The Liaison Committee on Medical Education (LCME) has stated that medical faculty and students need to address gender and cultural biases in the delivery of health care; and, in general, prepare providers to care for diverse patient populations. Under the direction of **Evelyn L. Lewis, M.D., (CDR, MC, USN, Retired), SOM Department of Family Medicine, and Richard Tanenbaum, Ph.D., SOM Department of Medical and Clinical Psychology**, USU has developed a biopsychosocial training program for medical students and residents, nursing students, clinical/medical psychology graduate students and other prospective health care professionals, faculty, and staff. The USU SOM Center for the Enhancement of Healthcare Training and Outcomes (CEHTO) enables the University to comply with the LCME requirements and improves USU's curricula by providing training to optimize patient adherence and enhance health care outcomes. During 2003, USU and the Departments of Family Medicine and Medical and Clinical Psychology applied for, and successfully received, a substantial grant from the National Institutes of Health (NIH) to sponsor the USU Center for Health Disparities Research and Education, referred to as *Project EXPORT*. Doctor Evelyn L. Lewis is the Principal Investigator on the NIH grant; Doctor Richard Tanenbaum serves as the Co-Principal Investigator and Project Director. **David S. Krantz, Ph.D., Professor and Chair, USU SOM Department of Medical and Clinical Psychology**, is the Center Director. As part of *Project EXPORT*, CEHTO will assist in meeting the following objective: to develop workshops and other educational forums that focus on disseminating critical knowledge about health disparities and teaching practical skills in order to maximize culturally proficient health care service delivery. (*See Section II, RESEARCH CENTERS AND PROGRAMS, for further information on Project EXPORT.*)

Department Establishes First Endowment to Enhance Education in Military Family Medicine.

During 2003, the Department of Family Medicine established its first endowment to enhance education in Military Family Medicine. At a ceremony held on September 5, 2003, Pfizer Pharmaceuticals presented the Henry M. Jackson Foundation with an unrestricted \$20,000 grant to initiate an endowment on behalf of the Department of Family Medicine.

Department of Family Medicine Hosts Two Major Conferences. The Department of Family Medicine hosted two significant conferences, during 2003, which were attended by hundreds of physicians: *The 11th Annual Capitol Conference Board Review Course* and the *Fourth Annual American Society of Sports Medicine Marine Corps Marathon Conference*.

The Department of Family Medicine Sports Medicine Fellowship Program. The Department of Family Medicine Sports Medicine Fellowship Program is headed by **Colonel Francis G. O'Connor, MC, USA, Associate Professor, USU SOM Department of Family Medicine**, who serves as a Board

member for the American Medical Athletic Association. In addition, Doctor O'Connor, and the Sports Medicine Fellowship Training Program continued to provide voluntary health care for sports teams throughout the Washington, D.C. area, to include medical support for the Northern Virginia Special Olympics and teams from Universities and other organizations. During October of 2003, the Sports Medicine Fellowship Program, Colonel O'Connor, **Commander Scott Pyne, MC, USN, United States Naval Academy**, and **Commander Bruce Adams, MC, USN, Marine Corps Base, Quantico**, helped to organize the Annual Marine Corps Marathon held in Washington, D.C.; they ensured medical support for more than 20,000 participants.

Department Begins a Major Renovation of the University Health Center. The Department of Family Medicine initiated the complete renovation of the USU Health Center, which will bring the clinical facilities in line with appropriate accreditation standards, policies and regulations; the renovation project will also provide a first-class facility that showcases the best of Military Health Care for the uniformed students at USU who will become the future physicians, advanced practice nurses, and scientists for the Military Health System. Phase I, the major portion of the renovation project, will be completed during 2004; Phase II is expected to be completed, during 2005.

Smoking Prevention Programs Provided at Six Elementary Schools. The Department also sponsored ***Tar Wars Smoking Prevention Programs*** at six local elementary schools for hundreds of students. This program uses the skills of the Department Faculty and the enthusiasm of the USU SOM medical students to deliver this important program, throughout the local area.

Individual Contributions.

Colonel Brian V. Reamy, USAF, MC, Associate Professor and Chair, USU SOM Department of Family Medicine, was selected to present a plenary lecture on Hyperlipidemia to the 55th Annual American Academy of Family Physicians (AAFP) Scientific Assembly held in New Orleans, on October 2, 2003. **Colonel Francis G. O'Connor, MC, USA, Associate Professor, USU SOM Department of Family Medicine**, was selected to direct Workshops on Musculoskeletal Medicine at the same meeting. The AAFP Annual Assembly is the largest single physician continuing education meeting in the world.

Colonel William Sykora, USAF, MC, Assistant Professor, USU SOM Department of Family Medicine, finalized an agreement with the University of Arizona to provide training in complementary medicine to DoD providers. The funding for this initiative was given by TATRC, Department of Defense, to the University of Arizona. The Department of Family Medicine provides expertise in the potential military applications of several complementary medicine techniques as well as access to providers throughout the Department of Defense.

Cindy C. Wilson, Ph.D., C.H.E.S., Professor, USU SOM Department of Family Medicine, coordinated, on behalf of the Department of Family Medicine, with the SOM Offices of Faculty Affairs and Medical Education to sponsor numerous courses and seminars, which strongly supported faculty development throughout the University. During 2003, 232 USU faculty members earned over 359 hours of continuing education.

Medical History - School of Medicine.

Individual Contribution.

Dale C. Smith, Ph.D., Professor and Chair, USU SOM Department of Medical History, participated in numerous background discussions with the National News Media, during 2003. Doctor Smith continued to bring the public's attention to the unique and critically required practice of military medicine and the essential provision of continuity, leadership, and medical readiness by USU for the Military Health System. For example, *CBS Sunday Morning News* featured a piece on battlefield medicine, for release on Sunday, April 13, 2003. The CBS reporters and crew interviewed both the current (Doctor Smith) and past (Robert Joy, M.D.) Chairs of the Department of Medical History, covered a portion of a lecture, and filmed extensively in the USU Patient Simulation Laboratory (PSL). On October 13, 2003, an article, *America's Near-Invisible Wounded*, in the New Republic, featured Doctor Smith's expertise reference American casualties in Iraq. He explained how, since Desert Storm, the size of the battlefield and the forward movement of American forces has made the transfer of casualties to a hospital a much longer trip; this prompted the Army to rethink the medevac process and eventually yielded a system, on display in Iraq today, which brings surgeons to the wounded rather than vice-versa.

Medical and Clinical Psychology - School of Medicine.

Departmental Activities.

The USU SOM Departments of Medical and Clinical Psychology and Family Medicine Establish the USU Center for Health Disparities Research and Education - Project EXPORT. The Liaison Committee on Medical Education (LCME) has stated that medical faculty and students need to address gender and cultural biases in the delivery of health care; and, in general, prepare providers to care for diverse patient populations. Under the direction of **Richard Tanenbaum, Ph.D., SOM Department of Medical and Clinical Psychology**, and **Evelyn L. Lewis, M.D., (CDR, MC, USN, Retired), SOM Department of Family Medicine**, USU has developed a biopsychosocial training program for medical students and residents, nursing students, clinical/medical psychology graduate students and other prospective health care professionals, faculty, and staff. The USU SOM Center for the Enhancement of Healthcare Training and Outcomes (CEHTO) enables the University to comply with the LCME requirements and improves USU's curricula by providing training to optimize patient adherence and enhance health care outcomes. During 2003, USU and the Departments of Family Medicine and Medical and Clinical Psychology applied for, and successfully received, a substantial (P20) grant from the National Institutes of Health (NIH) to sponsor the USU Center for Health Disparities Research and Education, referred to as *Project EXPORT*. Doctor Evelyn L. Lewis is the Principal Investigator on the NIH grant; Doctor Richard Tanenbaum serves as the Co-Principal Investigator and Project Director. **David S. Krantz, Ph.D., Professor and Chair, USU SOM Department of Medical and Clinical Psychology**, is the Center Director. As part of *Project EXPORT*, CEHTO, in partnership with the University of Maryland-Eastern Shore and other community-based organizations, will assist in meeting the following objective: to develop workshops and other educational forums that focus on disseminating critical knowledge about health disparities and teaching practical skills in order to maximize culturally proficient health care service delivery. (*See Section II, RESEARCH CENTERS AND PROGRAMS, for further information on Project EXPORT.*)

USU SOM Departments of Medical and Clinical Psychology, Medicine, Military and Emergency Medicine, and Preventive Medicine and Biometrics Receive NIH Funding for an Interdisciplinary Training Program. The National Heart Lung and Blood Institute (NHLBI) of the National Institutes of Health (NIH) awarded an Institutional Training Grant (T32) to **David S. Krantz, Ph.D., Professor and Chair, USU SOM Department of Medical and Clinical Psychology**, and **Tracy Sbrocco, Ph.D., Associate Professor, USU SOM Department of Medical and Clinical Psychology**, for an *Interdisciplinary Training Program in Behavioral Medicine and Cardiovascular Research*. The NIH grant provides stipends and expenses for a program to train predoctoral and postdoctoral students in areas of cardiovascular risk factors and prevention and cardiac pathophysiology. The program represents a collaboration of faculty from the USU SOM Departments of Medical and Clinical Psychology, Medicine, Military and Emergency Medicine, and Preventive Medicine and Biometrics.

Department Establishes a New Clinical Psychology Training Track. The Department of Medical and Clinical Psychology established a new clinical psychology training track with an emphasis

in medical psychology. The Department pursued accreditation for this track, during 2003, from the American Psychological Association.

(See Section IV, Responsiveness to the Needs of the Services and ACADEMIC REQUIREMENTS AND ACCREDITATION, for further information on the Department's Graduate Education Programs.)

Individual Contributions.

Michael Feuerstein, Ph.D., MPH, Professor, USU SOM Department of Medical and Clinical Psychology, was invited by the United States Department of Labor, Occupational Safety and Health Administration, National Advisory Committee on Ergonomics, to present the policy implications of his research. Doctor Feuerstein's presentation, given on January 27, 2004, was part of the Committee's effort, through a small group of invited researchers, to obtain advice and recommendations regarding new ergonomic guidelines, research and outreach. *(See Section II, RESEARCH CENTERS AND PROGRAMS, Center for Ergonomics and Workplace Health, for further information on Doctor Feuerstein's work.)*

Kelly Rohan, Ph.D., Assistant Professor, USU SOM Department of Medical and Clinical Psychology, received the *2003 J. Christian Gillin Young Investigator Research Award* from the Society for Light Treatment and Biological Rhythms (SLTBR). This award recognizes a "young investigator, who is actively conducting research on the clinical aspects of biological rhythms and light therapy, using an original approach that demonstrates independence of thought." Doctor Rohan's randomized clinical trial comparing light therapy, cognitive-behavioral therapy, and their combination for treating seasonal affective disorder (SAD) was also featured in a Washington Post article, *A SAD Solution*, on January 13, 2004 (Health Section, Page HE01).

Kathryn Roecklein, Graduate Student, Medical and Clinical Psychology, in collaboration with **Doctor Kelly Rohan; Ignacio Provencio, Ph.D., Assistant Professor, USU SOM Department of Anatomy, Physiology and Genetics (APG); and Mark D. Rollag, Ph.D., Professor, USU SOM Department of APG**, has recently completed a study observing an independent frequency of a specific gene mutation for melanospin in patients with seasonal effective disorder (SAD). This work builds on Doctors Provencio and Rollag's recent discovery of melanospin, a retinal pigment. Their current work is pursuing additional research to assess whether melanopsin may be involved in the pathophysiology of SAD and other circadian rhythm disorders.

Medicine - School of Medicine.

Individual Contributions.

Colonel Henry Burch, MC, USA, Associate Professor of Medicine and Director, Division of Endocrinology, served as Editor for the summer volume of The Endocrinology and Metabolism Clinics of North America entitled, *Consultative Endocrinology*. He has current chapters in five endocrinology textbooks, including Becker's Principles and Practices in Endocrinology and Metabolism, DeGroot's Endocrinology, Werner and Ingbar's The Thyroid, Wartofsky's Thyroid Cancer, and, McDermott's Endocrine Secrets. Doctor Burch serves as Reviewer for the Journal of Clinical Endocrinology, Thyroid, Endocrine Practice and several other journals. He serves as the Chief of the Endocrinology, Diabetes, and Metabolism Service at the Walter Reed Army Medical Center and as Chair of the Endocrinology Division for the USU Department of Medicine.

Louis Cantilena, M.D., Ph.D., Professor of Medicine and Director, Division of Clinical Pharmacology, serves as the President of the Association of Clinical Pharmacology Units (ACPU), an international organization of clinical research professionals who primarily conduct early phase human drug studies. He also chairs the Non-Prescription Drug Advisory Committee for the Food and Drug Administration. Doctor Cantilena is a reviewer for the Internet Journal of Medical Toxicology; and, he is also a member of the Patient Safety Subcommittee of the American College of Medical Toxicology.

Captain Chad DeMott, USAF, MC, Assistant Professor of Medicine, was selected by the residents at the Wright-Patterson Air Force Base, Ohio, as Ward Attending for the year. He co-authored two chapters in Pocket ICU Management, co-presented at a workshop on student logbooks at the Clerkship Directors of Internal Medicine Annual Meeting.

Sonia Doi, M.D., Ph.D., Research Associate Professor of Medicine, was a Guest Lecturer at the University of Sao Paulo (Research Committee Seminars, School of Pharmaceutical Sciences and Department of Physiology and Biophysics, Institute of Biomedical Sciences), Brazil. Her lectures focused on *Molecular Mechanisms in the Development of Chronic Kidney Disease* and on *Glutamine and Glomerulosclerosis*. Additionally, Doctor Doi was a featured guest speaker in the International Forum of Motor Activity and Health, Methodist University of Piracicaba, Brazil, and lectured on *The Effect of Glutamine on Glomerulosclerosis*.

Andre Dubois, M.D., Ph.D., Research Professor of Medicine, was the senior author in the lead Major Article of the April 15, 2003 issue of the Journal of Infectious Diseases; one of the figures submitted with Doctor Dubois' article was selected to illustrate the cover of that particular issue of the Journal. He co-chaired a session entitled, *Evolving Perspectives on H. pylori Disease and Management*, during the 2003 Meeting of the American Gastroenterological Association. At the same meeting, he presented a lecture entitled, *Worldwide Persistence of Helicobacter pylori: Role of Intracellular and*

Tissue Invasion, as well as two posters. As the recipient of the 2002 USU James Leonard Award for Excellence in Clinical Science Research, Doctor Dubois presented a lecture entitled, *Colonization and Invasion of the Gastric Mucosa by Helicobacter pylori: the Rhesus Monkey Model*.

Major Steven Durning, USAF, MC, Assistant Professor of Medicine, has recently published several articles in Academic Medicine and Teaching and Learning in Medicine, as well as an article in the Research in Medical Education Academic Medicine Supplement. Additionally, Doctor Durning serves as a reviewer for these medical education journals. Major Durning was also a finalist for the New Investigator Award for Research in Medical Education Meeting, in 2003; and, he served as an invited speaker at several meetings, including the Association of Medical Educators in Europe (AMEE) Meeting.

Margaret MacKrell Gaglione, M.D., was promoted to the rank of **Associate Professor of Medicine**, during 2003. She is often named most influential teacher by the third-year USU SOM students on Internal Medicine Rotations at the Naval Hospital in Portsmouth, Virginia. She presented a workshop on *Diagnosing and Treating Your Learner's Clinical Reasoning Skills*, at the Clerkship Directors in Internal Medicine Annual Meeting, held in Savannah, Georgia. Doctor Gaglione also had two papers published in Academic Medicine, *Role Modeling* and *Inter-Site Consistency as a Measurement of Programmatic Evaluation in a Medicine Clerkship with Multiple, Geographically Separated Sites*. Accepted for publication in Medical Education is *Assessment of Patient Management Skills and Clinical Skills of Practicing Physicians Using Computer-Based Case Simulations and Standardized Patients*. Doctor Gaglione is active in community service and speaks on nutrition at local middle schools; she also serves as an on-site physician for the *American Diabetes Association 30/50/100 Mile Bike Tour: Tour de Cure* in Chesapeake, Virginia.

Robert E. Goldstein, M.D., Professor and Chair, Department of Medicine, received the prestigious John F. Maher Memorial Laureate Award, in November of 2003. The District of Columbia Chapter of the American College of Physicians (ACP) presents this award to those physicians who have shown by their lives and conduct an abiding commitment to excellence in medical care and service to the ACP. In presenting the award, Doctor Eugene Libre, Governor, ACP, DC Chapter, noted that Doctor Goldstein... *“has set standards for professional skill and ethical conduct, (and) serves as a role model for other generations of physicians... (in) his many years of accomplishments, he serves as a beacon to guide our profession.”* Additionally, Doctor Goldstein was awarded the Department of Navy Meritorious Civilian Service Medal for his *“effective leadership, unparalleled initiative and inspiring devotion to duty... (and) in recognition and appreciation of his Meritorious Service, which has been of high value and benefit to the Navy.”*

Mark C. Haigney, M.D., Associate Professor of Medicine and Director, Division of Cardiology, published papers in Circulation Research and the Journal of the American College of Cardiology; his papers were based on both basic and clinical research regarding the pathophysiology of progressive heart failure. Doctor Haigney presented data at the North American Society for Pacing and Electrophysiology, demonstrating a new method for predicting lethal arrhythmias in subjects with

heart disease. Additionally, he was invited to give the core curriculum lecture on vasovagal syncope, the most common cause of loss of consciousness. Doctor Haigney serves on the Cellular and Molecular Transport Study Section of the National American Heart Association; and, he is a member of the Executive Committee for the AVID-2 Trail, an international study of defibrillators for the prevention of recurrent sudden cardiac death.

Lieutenant Colonel Paul Hemmer, USAF, MC, Associate Professor of Medicine, and Director, Third-Year Clerkships, was elected as the President-elect, USU Faculty Senate. Doctor Hemmer continues to serve as the Treasurer for the Clerkship Directors in Internal Medicine, the national organization for leaders in medical education. LtCol Hemmer is a reviewer for premier medical education journals, to include the: Journal of Academic Medicine, Journal of General Internal Medicine, Teaching and Learning in Medicine, and Medical Teacher. Because of his expertise and reputation in this field, LtCol Hemmer was honored as a Visiting Professor to the Emory University School of Medicine to discuss the evaluation of students and clerkships. Additionally, LtCol Hemmer was an Outstanding Graduate of the Air War College, in 2003.

Przemyslaw Hirszel, M.D., Professor of Medicine, Director, Division of Nephrology, continues to serve as a valued member of the Department of Medicine's Executive Committee and as a mentor to junior faculty members, whom he guides in their research endeavors. He also serves on several University and School of Medicine committees.

Lieutenant Colonel Jeffrey Jackson, MC, USA, Associate Professor of Medicine and Director, Division of General Internal Medicine, served as Chair of the Communications Committee and Chair of the Web Site Re-Design Committee for the Society of General Internal Medicine (SGIM), as well as a member of the Editor Selection Committee for the Journal of General Internal Medicine. He also served as the Chair for Workshops for the 2003 SGIM Regional Meeting held in Baltimore, Maryland. LTC Jackson conducted an 8-hour *Workshop on Meta-Analysis* and a 1.5-hour *Workshop on Structural Equation Modeling* for the Society of General Internal Medicine's 2003 Meeting, in Vancouver, Canada. His *Workshops on Providing Effective Feedback* and *Meta-Analysis* were selected, by peer-review, for presentation at the 2004 SGIM Meeting, in Chicago, Illinois. In recognition of his growing national and international reputation, Doctor Jackson was asked to conduct a meta-analysis of the effect of tricyclic anti-depressants on headaches for the International Cochrane Collaboration, based in the United Kingdom, and to write a chapter on total body imaging for Up-To-Date, the premier educational resource for staff, residents, and medical students in the United States. Led by Doctor Fletcher at Harvard University, Up-To-Date is an attempt to provide evidence-based answers to clinical questions in real time. Doctor Jackson has successfully mentored several Fellows in the General Internal Medicine Fellowship Program; and, he has presented papers and posters at several scientific programs. He is a prolific writer with seven publications in 2003, five papers in press, and another five papers currently in review, in the fields of medical outcomes, patient satisfaction, faculty development, and alternative health practices. His papers have appeared in Academic Medicine, Annals of Internal Medicine, Archives of Internal Medicine, and JAMWA.

Captain Gregory Martin, MC, USN, was promoted to **Associate Professor of Medicine**, and is the Course Director for three new graduate courses in ***Weapons of Mass Destruction: Nuclear, Radiation and High Yield Explosives***. He led the evaluation and treatment of 43 Marines with falciparum malaria, contacted in Liberia; findings were presented to Subcommittees of the United States Senate and House of Representatives. He also completed book chapters on *Envenomations* and another on *Pulmonary Infections in the Tropics*. Doctor Martin has given several invited lectures on relevant, *hot-button* topics: at ***the National Institutes of Health***, he presented *Malaria in Marines Deployed to Liberia: Lessons Learned in Preparing for Biowarfare*; at ***the Johns Hopkins University Bloomberg School of Public Health***, he lectured on *The Changing Role of the Department of Defense in Emergency Preparedness in the Wake of 9/11 and the 2001 Anthrax Events*; at ***The American College of Chest Physicians Annual Meeting*** held in Orlando, Florida, he presented a *Bioterrorism Workshop: The Bacterial Agents of Biowarfare-Anthrax, Plague and Tularemia*; and, at the 8th Annual Infectious Diseases Board Review Course held in McLean, Virginia, he presented *Bioterrorism: Clinical Issues the ID Practitioner Should Know*.

Colonel Deborah Omori, MC, USA, Associate Professor of Medicine, is a Fellow in the American College of Physicians. She presented a workshop on *Bioterrorism for Internists* at the Army American College of Physicians Meeting and at the 25th Annual Society of General Internal Medicine Meeting. Doctor Omori also presented a workshop on *Objective Structured Clinical Examinations and Standardized Patients in Medical Education: Getting Started and Expanding Roles* at the 2003 Clerkship Directors in Internal Medicine National Meeting, held in Savannah, Georgia. Colonel Omari is a member of the Precourse Selection Committee for the 27th Annual Society of General Internal Medicine. She also developed a workshop on *Improving the Early Identification and Intervention of Professional Issues* for the 27th Annual Society of General Internal Medicine Meeting, held in Chicago, Illinois. She is Chairman of the Army's National Capital Area First-Year Graduate Medical Education (GME) Board (FYGME); and, she is Coordinator of the annual OSCE for second-year USU medical students. In addition, Doctor Omori presents an annual workshop for the USU General Internal Medicine Fellows on *Bedside Teaching* and *Clinical Teaching Through Role Play*.

Louis N. Pangaro, M.D., Professor of Medicine, Vice Chair, Educational Programs, serves on the Research Advisory Committee of Academic Medicine and on the Internal Research Review Committee, National Board of Medical Examiners. He also serves as the Co-Director, Course for Residency and Fellowships Program Directors, for the National Capital Consortium; and, he is a member of the Research in Education Committee of the GEA/AAMC. He is highly sought after on the evaluation of students, having presented at various medical schools in North America and the National Board of Medical Examiners. In addition, he has lectured to clerkship directors at the annual CDIM meeting as well as to staff at USU's affiliated hospitals. Doctor Pangaro has presented at several workshops, including the Association for Medical Education in Europe. He has written numerous publications for peer-reviewed publications such as Academic Medicine, CDIM News, and Teach and Learn Medicine.

Matthew Pollack, M.D., Professor of Medicine, uses various animal models to study pathogenic mechanisms of bacterial diseases and host responses to a common grouping of opportunistic bacteria known as gram-negative bacteria. He has published extensively in the fields of bacterial diseases,

Pseudomonas infections, endotoxin, sepsis, and septic and hemorrhagic shock. His research on cytokines and hemorrhagic shock has serious implications for military medicine since shock continues to be one of the most common and serious consequences of battlefield injury and one of the most frequent causes of death.

Lieutenant Colonel John Poremba, USAF, MC, Assistant Professor of Medicine, published an article on improving diabetic foot care in the Journal of General Internal Medicine; and, he co-authored three poster presentations for the Endocrine Society. He directed the 2003 *Clerkship Directors of Internal Medicine (CDIM) Post-Course on Standardized Patients* and co-authored a CDIM workshop. He was named Course Director for *ICM-III* and has implemented a course website and an on-line testing program for *ICM-III*.

Lieutenant Colonel Michael Roy, MC, USA, Associate Professor of Medicine and Director, Division of Military Internal Medicine, published extensively, during 2003. He served as Editor for the Physicians's Guide to Terrorist Attack, a 420-page clinically-oriented book published by Humana Press; the book is intended to prepare health care providers for responding to conventional, biological, chemical, and radiological terrorism. Also, he was Editor of a 72-page supplement to Military Medicine, which was focused on the future of military medical education. Colonel Roy authored a chapter entitled, *Bioterrorism*, in the book, Combat Medicine, published by Humana Press; he authored another chapter on *Depression* in a book entitled, Psychiatry for Primary Physicians, published by the American Medical Association; and, he authored six articles in peer-reviewed medical journals. Doctor Roy provided a 10-lecture series on military medicine for students at the National Defense Medical College in Tokyo, Japan; he provided approximately one dozen lectures to military and civilian audiences on improving the diagnosis and treatment of depression and anxiety in primary care, at locations around the Nation, to include Philadelphia, Baltimore, Washington, D.C., and San Francisco. ***His editorial skills are in great demand, as he provides peer reviews for nine medical journals; and, the quality of his reviews has been recognized for being in the top 10 percent of all reviews by Annals of Internal Medicine.*** Doctor Roy serves as Editorial Consultant for the *American College of Physicians' Information and Education Resource*, an on-line evidence-based guide for clinicians, providing modules on both posttraumatic stress disorder and complementary and alternative medicine in the treatment of depression. In the research arena, he is the Primary Investigator for a \$1.25 million grant from the United States Army Medical Research and Materiel Command to study the health effects of DEET, permethrin, and pyridostigmine under stress conditions; he has completed subject enrollment and has presented results at national meetings. Doctor Roy also serves as Co-Investigator in a study on the safety of lasers as non-lethal weapons, under a grant from the Non-Lethal Weapons Directorate. Significantly, Doctor Roy was recognized as a leader in military medicine upon his selection as one of only 21 Army physicians to receive the *A Proficiency Designator*, in 2003.

Terez Shea-Donohue, Ph.D., Research Professor of Medicine, is a Co-Investigator on a National Institutes of Health (NIH) grant, RO1HL-62282, *Substance P Mediated Cardiovascular Inflammation*, with William Weglicki, M.D., George Washington University School of Medicine. This research will identify the impact of mild to severe magnesium deficiency cardiac and gastrointestinal function. ***Doctor Minela Fernandez, a third-year Pediatric Gastroenterology Fellow working in Doctor Shea-Donohue's***

laboratory, was selected as a finalist for the North American Society for Pediatric Gastroenterology, Hepatology and Nutrition Fellow Award. Doctor Shea-Donohue was invited to join the Working Team on Gastrointestinal Motility and its Control in Health and Disease; a collaborative effort between the World Congress of Gastroenterology (Montreal 2005) and AstraZeneca (through an educational grant) to create a new set of teaching/research material in this field, which will be made available to the public. Doctor Shea-Donohue was also the recipient of an Invitational Travel Award, from the International Motility Society in Barcelona, Spain.

Lieutenant Colonel Jose A. Stoute, MC, USA, recently returned from a six-year assignment in Kenya, Africa, where he conducted malaria vaccine trials and developed a severe malaria research and training program that is funded by the National Institutes of Health and the Fogarty International Center. In addition to his continued involvement in malaria research, in Kenya, he is also developing intramural research programs to study malaria pathogenesis focusing on both animal and *in vitro* models.

Colonel George Tsokos, MC, USA, Professor of Medicine, Vice Chair for Research Programs, and Director, Division of Immunology and Rheumatology, is well known in his field of expertise. He continues to serve as a member of the NIH Immunological Sciences Study Section; and, he was elected Councilor/President for 2001-2006 of the Clinical Immunology Society. Doctor Tsokos is also a member of: the Board of Directors of the Lupus Foundation of America; the Arthritis Foundation Immunology Study Section; and, the Abstract Selection Committee, National American College of Rheumatology. Colonel Tsokos serves as editor, or guest editor, of numerous publications such as International Reviews in Immunology, Trends in Molecular Medicine, Journal of Immunology, Clinical and Diagnostic Laboratory Immunology, Lupus, Journal of Investigative Medicine, and Clinical Immunology. He is the Chair of the Editorial Board of Lupus News; and, he is the Editor-in-Chief of Modern Therapeutics in Rheumatic Diseases. Doctor Tsokos has contributed chapters in several books. He is a much sought after speaker on the topic of Lupus and other immunological diseases and currently holds three NIH RO1 grants and one grant from the Medical Research Materiel Command.

Colonel Robert Vigersky, MC, USA, Associate Professor of Medicine, has become a member of the American Board of Internal Medicine's Question Writing Committee. He has continued to represent the Endocrine Society as its American Medical Association (AMA) Delegate; he completed a three-year term as the Chair of the Clinical Affairs Committee and has been appointed as the Chair of the Clinical Guideline Committee. He serves as a member of the National Diabetes Education Program and is a Section Editor for the Journal, The Endocrinologist. His research has focused on the use of technology to assist in the diagnosis management of diabetes mellitus and its complications; he has received several competitive awards in support of those efforts. He was awarded the ***Department of the Army's A Proficiency Designator*** and also received the *James Leonard Award for Excellence in Teaching*.

Microbiology and Immunology - School of Medicine.

Individual Contributions.

Alison D. O'Brien, Ph.D., Professor and Chair, USU SOM Department of Microbiology and Immunology. In teaching the *Medical Microbiology and Infectious Diseases (MMID) Course*, Doctor O'Brien gave 12 hours of lectures with approximately 35 hours of lecture preparation, 16 hours of laboratory exercises, three hours of review conferences, 20 hours of examination question preparation, and four hours of review of MMID examinations. Doctor O'Brien is the on-site Course Coordinator and one of three Course Planners for the four-quarter *Models of Emerging Infectious Diseases (EID) Course*. In *EID 501*, she gave two hours of lectures (plus two hours of lecture preparation) and served as Group Discussion Leader for a two-hour tutorial session. She also graded mid-term examinations (two hours), participated in the oral final examination (total for two quarters was 13 hours), and attended most lecturers and tutorial sessions (30 hours). She gave a one-hour lecture to graduate and undergraduate students at Miami University, a one-hour lecture on toxins at the University of South Dakota, and a two-hour lecture to graduate students, with a separate one-hour lecture on toxins, at the University of Alabama. Doctor O'Brien's laboratory has continued with superior funding through the support of a recently funded portion of one of the six program grants that were a part of the Middle Atlantic Regional Center for Excellence (MARCE) application; she is a Project Leader for two cores. Her Regional Center for Excellence projects include the investigation of *B. anthracis* spore antigens as well as EHEC and *Shigella dysenteriae* type 1. Doctor O'Brien also was recently awarded a seven-year subcontract with ATCC funded by the National Institutes of Health (NIH/NIAID). This subcontract involves the creation of a facility for the acquisition, authentication and production of select agent toxins. During the past year, Doctor O'Brien published in five peer-reviewed journals and completed two chapters for premier publishers in her area of study.

Christopher C. Broder, Ph.D., Associate Professor, USU SOM Department of Microbiology and Immunology, had a most productive year, during 2003. In the area of *teaching*, he presented nine one-hour lectures in the *Medical Microbiology and Infectious Diseases (MMID) Course* and participated in 17 hours of laboratories and small group sessions. He also served as the Coordinator for the *Virology Laboratory Cases Exercise* and the *Rabies POPs*. In addition, he gave two hours of lectures in the *Molecular and Cell Biology (MCB) Techniques Course*; one hour of lecture in the *Emerging Infectious Diseases (EID) 501 Models Course*; and, four hours of lecture in the Department's *Graduate Virology Course*; Doctor Broder was Co-Coordinator of that course. In the *research* arena, Doctor Broder continued to demonstrate his prowess. He submitted two R01s and 1 U01 applications, during 2003, and wrote a part of, and served as a project leader for one of the six program grants that comprised the Middle Atlantic Regional Center for Excellence (MARCE) application; he also serves on the MARCE Management and Oversight Committee. In addition, he filed two patent applications. Doctor Broder also co-published 7 peer-reviewed manuscripts, in premier journals. His contributions to USU are as a member of: the Merit Review Committee; the Research Policy Committee; the Comparability and Faculty Welfare Committee; and, the Equipment and Unfunded Requirements Review Committee. Finally, Doctor Broder serves the extramural scientific community as: a member of University of California's Grant Review Panel on the Molecular Biology and Pathogenesis of HIV; and, he serves as

an *ad hoc* member for Experimental Virology (EVR) and AIDS Molecular and Cellular Biology Study Sections at the National Institutes of Health (NIH). Doctor Broder has presented four invited lectures at: the Biodefense Vaccines Conference, held in Washington, D.C.; the NIH Research Festival Mini-Symposia, held in Bethesda, Maryland; the Norman P. Salzman Fourth Annual Symposium in Virology, held at the NIH; and, at the 6th Asia Pacific Congress of Medical Virology Meeting, held in Kuala Lumpur, Malaysia.

William C. Gause, Ph.D., Professor and Vice Chair, USU SOM Department of Microbiology and Immunology, participated as a lecturer (nine hours), laboratory instructor, and small group session leader in the *Medical Microbiology and Infectious Diseases (MMID) Course*. Doctor Gause also served as a lecturer in the *Molecular and Cell Biology Techniques Course* (two hours), the *Genetics Course* (three hours), and as the Director of the *Microbiology and Immunology Graduate Course on Cellular and Molecular Immunology* (two hours). Doctor Gause's laboratory is extraordinarily well funded through the support of three R01s, two of which are his; indeed, one of his R01 awards was submitted for a competitive renewal and received a priority score of 141. Doctor Gause also has two NIH subcontract awards; and, he submitted a NCRR Shared Instrumentation application. During this past year, Doctor Gause lists five peer-reviewed papers in premier journals and an invited chapter. Doctor Gause's service to the University community, in addition to serving as Vice Chair of the Department, includes the following: Chair of the Departmental Search Committee for a new immunologist; and, Chair of the Biomedical Instrumentation Center Committee. Finally, Doctor Gause served the extramural scientific community in numerous ways, to include serving as a member of an NIH study section and as chair of a major symposium at the American Association of Immunologists (AAI) meeting. He was also an invited seminar speaker at three universities and an NIH symposium, where he presented: *Cytokines in the Pathogenesis of Asthma and Th2-mediated Diseases*. The research conducted in his laboratory is of considerable significance to the Military Health System and the USU mission as it examines the regulation of protective immune responses to helminthic parasites and certain pathogenic bacteria.

Chou-Zen Giam, Ph.D., Professor, USU SOM Department of Microbiology and Immunology, had a productive year. In the category of *teaching*, Doctor Giam participated in the *Medical Microbiology and Infectious Diseases (MMID) Course* as a lecturer (eight hours), as a small group and laboratory session leader, and as the editor of the *Virology* block notes and examination. He was also the organizer of the Virology Journal Club and the Course Coordinator for the *Advanced Molecular Virology Course*. Doctor Giam is the mentor of two Molecular and Cell Biology (MCB) graduate students; and, he is on the thesis committees of three other Ph.D. students. Doctor Giam also served the Department as the Chair of the Virologist Search Committee, during 2003. He is a member of the Oversight Committee for the USU Genomic and Proteomic Facility. Presently, Doctor Giam is the Principal Investigator for two R01 grants on HTLV-1 replication and pathogenesis, in their 16th and 7th year of funding, respectively. One of these two grants is being competitively renewed. Doctor Giam has been recently funded with a DoD grant on HCV replication and persistence; this grant has provided support for departmental laboratory renovation and equipment acquisition. He is a member of the Editorial Board of the *Journal of Virology* (2004-2006); he has served as an *ad hoc* reviewer for premier publications such as *Blood*, *Cancer Research*, the *Journal of Virology*, *Oncogene*, etc.; and, Doctor Giam was an invited speaker at the Laboratory of Metabolism, the National Cancer Institute, the National Institutes of Health, and the International HTLV-1 Meeting in San Francisco, California.

Ann E. Jerse, Ph.D., Associate Professor, USU SOM Department of Microbiology and Immunology. In the area of *teaching*, Doctor Jerse made a substantive contribution to the *Medical Microbiology and Infectious Diseases (MMID) Course* as a lecturer (seven hours), laboratory instructor, and small group session leader. Doctor Jerse was the Course Director for the departmental *Advanced Graduate Course on Pathogenic Mechanisms* (56 hours); and, she participated in the *Models of Pathogenesis Emerging Infectious Diseases (EID) Course 502* (five hours). Doctor Jerse also supervised the research projects of two graduate students, an Infectious Disease Fellow, and a rotating graduate student. Furthermore, she serves on nine graduate students' committees, which include those of two of her own students. Doctor Jerse's *research program* is centered on defining the mechanisms by which *Neisseria gonorrhoeae* adapts to innate defenses of the female genital tract. This work is supported by an R01 grant and an intramural grant from USU. She also has two subcontracts with outside universities to develop gonorrhea vaccines and vaginal microbicides; and, she has a subcontract with a pharmaceutical company to test new antibiotics against *N. gonorrhoeae* using the female mouse model of gonococcal genital tract infection developed in her laboratory. Doctor Jerse submitted a competitive renewal application for her R01 grant, this year. She also submitted a proposal as part of the competitive renewal of a Clinical Research Center grant held by the University of North Carolina (P.I., P.F. Sparling) and set up a subcontract with Doctor William Shafer at Emory University for a grant he submitted, in January of 2004, for developing synthetic and natural peptides as vaginal microbicides against sexually transmitted infections. She is currently working with the Henry M. Jackson Foundation to set up an agreement with the Chiron Corporation to test vaccine candidates in her mouse model. Doctor Jerse was a guest seminar speaker at NMRC and an invited speaker at the NIAID Vaginal Microbicides Workshop, in the Spring of 2003, and at the Cold Spring Harbor Bacterial Pathogenesis Meeting, held in September of 2003. She had two peer-reviewed publications accepted, in 2003, by two premier journals. Finally, in the area of *service to the University*, Doctor Jerse is on the USU IACUC and the Graduate Student Recruitment Committee for the MCB Program. She also serves the extramural community as an *ad hoc* reviewer and is a member of the *Infection and Immunity* Editorial Board.

Guangyong Ji, Ph.D., Assistant Professor, USU SOM Department of Microbiology and Immunology, served as a lecturer (six hours) and the Laboratory Director for the *Medical Microbiology and Infectious Diseases (MMID) Course*, during 2003. He participated in the *Prokaryotic and Eukaryotic Genetics Course* (7.5 hours), and served as a member on two graduate student committees. Doctor Ji also supervised the research project of a graduate student. Doctor Ji's research is focused on the mechanism of the processing and secretion of the *Staphylococcus aureus* signal molecule that is utilized by bacteria to regulate virulence gene expression and the molecular characterization of a staphylococcal membrane protein that is involved in these processes; this work is supported by a National Institutes of Health R01 grant.

Susan G. Langreth, Ph.D., Associate Professor, USU SOM Department of Microbiology and Immunology, made a significant contribution to the *teaching programs* of the Department. Her principal contribution was serving as the *Course Director of Medical Microbiology and Infectious Diseases (MMID)*, a major second-year SOM course. Doctor Langreth is also the *Course Director for the four related courses for graduate students (Immunology, Basic Bacteriology, Pathogenic Bacteriology, and Virology)*. Doctor Langreth also published a peer-reviewed article, during 2003.

Anthony T. Maurelli, Ph.D., Professor, USU SOM Department of Microbiology and Immunology. In the area of *teaching*, Doctor Maurelli presented lectures in the *Medical Microbiology and Infectious Diseases (MMID) Course* (seven hours); and, he participated as a laboratory and small group session leader for the course. Doctor Maurelli also presented four hours of lectures in the *Molecular and Cell Biology (MCB) Genetics Course*, for which he serves as the Course Director, and the *Microbiology and Immunology Graduate Course on Pathogenic Mechanisms* (1 lecture blocks). This year, Doctor Maurelli was awarded a competitive renewal of a National Institutes of Health (NIH) Shigella grant. He also submitted late for a competitive renewal of an NIH Chlamydia grant, receiving bridge funding, in the interim. Doctor Maurelli's *service to the Department and to the USU community* includes his membership on the CAPT Committee, the University Safety Committee, and the Graduate Education Committee. Additionally, he is an active participant on three graduate student committees, including one of his own students. He is also *Director of the Microbiology and Immunology Graduate Program* (i.e., academic director of the remaining students who entered the program before it merged with the Emerging Infectious Diseases (EID) Program), the immediate supervisor of the Department's washroom personnel, and, as noted above, *Course Director for the Molecular and Cell Biology Genetics Course*. Lastly, Doctor Maurelli gives freely of his time to elementary schools as a volunteer scientist. He was also an *ad hoc* member of one NIH Study Section, as well as a reviewer for several journals. Doctor Maurelli published two articles in peer-reviewed journals, during the past year.

Eleanor S. Metcalf, Ph.D., Professor, USU SOM Department of Microbiology and Immunology. In the area of *teaching*, Doctor Metcalf is a dedicated, organized, and well-liked lecturer and laboratory/small group instructor for the *Medical Microbiology and Infectious Diseases (MMID) Course*. She is also teaching in the *Advanced Immunology Course: Cellular and Molecular Immunology*, the core course in the Emerging Infectious Diseases (EID) curriculum. Moreover, she provided four hours of lectures in the *Molecular and Cell Biology (MCB) Techniques Course*. Doctor Metcalf is a member of several graduate students' Dissertation Committees; and, she chairs one of those committees. *Again this year, she has spent many hours on organizing and directing the new Emerging Infectious Diseases (EID) Interdisciplinary Graduate Program*. Additionally, in her role as Chair of the Graduate Education Committee (GEC), she orchestrated the fourth gathering of prospective graduate students at USU. Doctor Metcalf's *research endeavors* have included the submission of an NIH competitive renewal, on which she serves as a subcontractor; an NIH R21 application; and, a labor-intensive NIH training grant proposal for the EID Graduate Program. Doctor Metcalf's *service to the University*, in addition to serving as the Director of the EID Program and the Chair of the GEC, includes memberships on the Advisory/Oversight Committee for the Master Degree in Comparative Medicine Program; the M.D./Ph.D. Advisory Committee for the Physician Scientist Training Program; the University Space Committee; the USU SOM Research and Education Endowment Fund Oversight Committee; the Search Committee for the Chair of Pathology; and, the Chair of the Organizing Committee for the 2004 GEC Graduate Student Open House. Her *contributions to the extramural scientific community* include membership on a Dissertation Committee at the University of Pennsylvania and as an *ad hoc* reviewer for several journals. Basic science advances in the area of emerging infectious diseases can affect the current and future health of individuals throughout the Military Health System. *Through the Emerging Infectious Diseases Graduate Program, the USU SOM has increased its capacity and commitment to training students and fellows in areas of vital interest and importance to military medicine, such as biothreat and bioterrorism agents*. Doctor Metcalf published two peer-reviewed articles, during 2003.

Brian C. Schaefer, Ph.D., Assistant Professor, USU SOM Department of Microbiology and Immunology, participated as a lecturer (one hour), laboratory instructor, and small group session leader in the *Medical Microbiology and Infectious Diseases (MMID) Course*. Doctor Schaefer also lectured in the *Microbiology and Immunology Graduate Course on Cellular and Molecular Immunology* (two hours), and he recruited two guest lecturers for the course (Doctor David Schatz and Doctor Brad Swanson). Doctor Schaefer has been extremely aggressive in seeking extramural funding: he submitted an R01 application, which received favorable reviews; but, it was not funded. This grant was re-submitted for possible funding, in 2004. He was also nominated by USU to submit an application to the Dana Foundation Program in Brain and Immuno-Imaging. Although this grant was not funded, the Dana Foundation requested that Doctor Schaefer resubmit his proposal with minor modifications in the next review cycle, suggesting that it had an excellent chance for eventual funding. Finally, Doctor Schaefer applied for the Kimmel Scholar Award from the Sidney Kimmel Foundation for Cancer Research, which will be reviewed in 2004. Over the past year, he was recruiting personnel for his laboratory. Currently, he has one post-doctoral fellow, one permanent graduate student from the Molecular and Cell Biology (MCB) Program, and two rotating graduate students from the Emerging Infectious Diseases (EID) Graduate Program; both students are likely to join his laboratory. Doctor Schaefer also had two additional rotating MCB graduate students over the past year. He has provided service to the University Community as a member of the Biomedical Instrumentation Center (BIC) Subcommittee on Imaging, and as an interviewer for prospective EID graduate students. Doctor Schaefer has also served as an *ad hoc* reviewer for the journal, *Proceedings of the National Academy of Science*, which also published one of his articles, during the past year.

Military and Emergency Medicine - School of Medicine.

Departmental Activities.

Graduate Programs in Undersea Medicine and Aviation Physiology. In August of 2001, the USU Board of Regents gave its final approval for a new graduate program within the Department of Military and Emergency Medicine (MEM). This new graduate program, with its two specialties, emphasizes multidisciplinary education and research, and represents both a philosophy and mechanism for facilitating scientific investigations that bridge and integrate basic and medical sciences with applied environmental physiology. Such approaches are required for the foundations of operational medicine and applied physiology. The overall objective of the new graduate program is to serve the operational requirements of the Uniformed Services. The program's two specialties were developed in response to needs expressed particularly in the areas of Undersea Medicine and Aviation Physiology. These areas of study are unique from other medical fields of inquiry and demand specialized training. As such, the program's specialties unify a diversity of disciplines requisite for exploring questions relevant to operational activities and applied situational outcomes. The military student obtains a foundation in the basic sciences with research experience in experimental and applied physiology. The Undersea Medicine Specialty offers a Master of Science Degree (with thesis) and a Ph.D. Degree; and, the Aviation Physiology Specialty offers a Master Degree (with thesis). The graduate program accepted its first students, in August of 2002; and, there are currently two students enrolled in the program. Faculty for the program come from the Department of Military and Emergency Medicine as well as other SOM Departments; collaborative faculty include both active duty officers, some from military laboratories, and civilians who are experts in their fields. The Program Director can be contacted by e-mail at <vcassano@usuhs.mil>.

Applied Human Biology Division/Human Performance Laboratory - Establishment and Mission. The Human Performance Laboratory (HPL) was established, in 1984, as part of the Department of Military and Emergency Medicine, at USU, to provide a research base within the Department for conducting clinical and basic research projects relevant to military training and operations that would add to the understanding of factors that enhance/sustain human performance under operational conditions. In concert with the mission of USU, the mission of the HPL is to: 1) provide graduate, medical and other students and personnel at USU opportunities to participate in operationally relevant education and research experiences with a focus on maintenance and enhancement of human performance; 2) serve as a resource to USU and other DoD and government facilities for information relating to health, physical fitness, nutrition, and physical training programs; and, 3) maintain a strong research program for all aspects of human performance and military operational applications. Faculty and staff, within the HPL, participate in the education of medical and graduate students, in ongoing research efforts funded by the National Institutes of Health and the DoD, and in the provision of consultative support for the DoD. Activities of note occurring over the past year include the following: ***Educational Materials for the Uniformed Services.*** In September of 1999, two manuals relating to Force Health Protection were prepared and published for the Navy by the faculty and staff in the HPL. These manuals, entitled *Force Health Protection: Nutrition and Exercise Resource Manual* and *Peak Performance Through Nutrition and Exercise*, were widely disseminated for use; many requests for additional printings continue to be received. In the Spring of 2001, both the Coast Guard Health Promotion Directorate and the Marine

Corps requested permission to obtain and modify the manual, *Peak Performance through Nutrition and Exercise*, to be specific for their unique Services. Pictures relevant to their particular mission and selected words were changed so that the manual could be made available for all active duty Coast Guard personnel and Marines. Thus, these manuals are now being used by all Services in some capacity. In the Fall of 2002, the PHL produced an education tool, *A Compendium of Nutritional Products*, for divers in the United States Navy. Since the DoD is developing policies relating to the use of nutritional supplements, this new document will be of great use to the Navy divers. In sum, educational products prepared by the HPL have been, and are currently being used on a worldwide basis; and, they continue to benefit those who serve in the Uniformed Services. **HPL Research Publications.** Each year, a number of peer-reviewed articles, written by faculty and staff in the HPL, are published. During the past year, two papers were published in Military Medicine and in three other journals. The paper entitled, *Attitudes and Knowledge about Continuous Oral Contraceptive Pill Use in Military Women*, won an award and is very timely due to current deployment issues. Another paper, *Health Assessment of United States Army Rangers*, describes health attitudes, physical activity patterns, and supplement use among Army Rangers. This has also proven to be timely in that DoD has reconvened a committee to examine dietary supplement use among active duty personnel and to make recommendations regarding their use. Other articles have appeared in the Journal of Orthopedic Trauma, the Journal of Clinical Endocrinology and Metabolism, and Neurochemical Research. All of these publications have proven to be quite relevant to the Department of Defense. **Consultative Support.** Faculty within the HPL have been active throughout the DoD and civilian communities. **Patricia A. Deuster, Ph.D., Professor, USU SOM Department of Military and Emergency Medicine**, served as a grant reviewer for two National Institutes of Health (NIH) Review Panels: *Chronic Fatigue Syndrome/Fibromyalgia Syndrome Special Emphasis Panel* and the *National Center for Complementary and Alternative Medicine Special Emphasis Panel*. In addition, she served as an Invited Speaker for an NIH course on physical fitness, on a Navy committee on dietary supplements, and on two DoD-related committees: the *DoD/FDA Dietary Supplement Committee* and the *Veterans Affairs (VA) National Executive Committee for the MOVE (Movement for Obese Veterans Everywhere) Program*, a national health promotion program initiated by the VA to combat obesity. **Lieutenant Commander David O. Keyser, MSC, USA, Assistant Professor, USU SOM Department of Military and Emergency Medicine**, served as a principal investigator and consultant for ongoing international research efforts sponsored by the United States Department of Defense, as part of an antiterrorism focus, since 9/11; he was part of a review team that was tasked with evaluating the research potentials of private industry in support of these research efforts. Additionally, LCDR Keyser was an invited participant at an international information exchange meeting sponsored jointly by the United States Navy and the United Kingdom. This meeting has led to the development of a multi-year international research effort directed at understanding and protecting against novel weapons of mass destruction. LCDR Keyser has also represented USU as a scientific review panel member for the Office of Naval Research and the Naval Medical Research Command to help establish priority and direction of research funds for the Undersea Biomedical Research and Development community. He has also been an active member of the Walter Reed Army Medical Center Human Use Committee.

Individual Contributions.

Jeffery E. Drifmeyer, Ph.D., Assistant Professor, USU SOM Department of Military and Emergency Medicine, and Craig H. Llewellyn, M.D., Professor and Past Chair, USU SOM

Department of Military and Emergency Medicine, published two articles in Military Medicine, *Overview of Overseas Humanitarian and Civic Assistance* and *Military Training and Humanitarian and Civic Assistance*, during 2003.

(See Section I, Military Unique Curriculum, of the USU Journal for additional information on the Department of Military and Emergency Medicine.)

Neurology - School of Medicine.

Departmental Activities: The Department of Neurology has oversight for three Congressionally mandated programs:

The Defense Brain and Spinal Cord Injury Program. This program, established in 1992, continues to provide care and research for patients with brain and spinal cord injury throughout the DoD and VA hospitals. Funding was received for the program, in 2003, in the amount of \$10 million;

The Post-Polio Syndrome Program. Established in 2000, this program provides patient care and research in the area of Post-Polio Syndrome (PPS). A large multi-center protocol began, during 2002, to include the following collaborators: USU; the Conemaugh Health Program in Johnstown, Pennsylvania; the Walter Reed Army Medical Center; the National Institutes of Health; and, the National Rehabilitation Center. This protocol investigates the cause of PPS and researches treatment effectiveness against symptoms; additional treatment and investigative protocols are being developed. Funding was received for the program, in 2003, in the amount of \$3.2 million; and,

The Neuroscience Program. This program was established during 2001; it investigates the cause and researches preventive and treatment options for neurological patients suffering from stroke, spinal column issues, headaches, epilepsy, and pain. The collaborative institutions include: USU; the Conemaugh Health Program in Johnstown, Pennsylvania; the National Naval Medical Center (NNMC); and, the Walter Reed Army Medical Center. Ongoing protocols focus on headache and stroke. Future protocols are being developed for studying epilepsy, spine problems, and pain. The Navy plans to establish a Spine Center at the NNMC. Funding received for the program, in 2003, was \$5.4 million.

Individual Contributions.

Lieutenant Colonel Geoffrey Ling, MC, USA, Professor, USU SOM Department of Neurology, was appointed to the National Institutes of Health's PULSE (Post-Resuscitation and Utility of Life Saving Measures) Committee. He was also named Chair of the PULSE Subcommittee on Central Nervous System Trauma. Doctor Ling was the organizer of the first Brain Injury Symposium, held at USU, on June 3, 2002; and, he has been the guest speaker and expert advisor at five major military meetings, to include one held in Russia, during 2002. On February 10, 2004, the Newswire Service featured Dana Reeve, wife of actor, Christopher Reeve, a Director of the Christopher Reeve Paralysis Foundation (CRPF) and Chair of the Quality of Life Committee, and Doctor Ling. Ms. Reeve visited the Walter Reed Army Medical Center to present a Quality of Life Grant check to the Henry M. Jackson Foundation for the Advancement of Military Medicine for the Defense Spinal Cord and Column Injury Center (DSCCIC). The DSCCIC, which is funded by the Henry M. Jackson Foundation, was awarded a \$21,900 Quality of Life Grant to create a newsletter and implement a website to supply information about

the DSCCIC to people living with spinal cord and column injuries, medical practitioners, and policy makers. Dana Reeve was joined by Doctor Geoffrey Ling, Director, DSCCIC, as well as other leaders in the field, during the presentations. Originally conceived by Dana Reeve, the Quality of Life Grants are awarded twice yearly and intended to help in activity categories such as: sports; arts; education; outdoor recreation; advocacy; employment; and, assistive technology. In the second half of 2003, CRPF awarded \$713,897 to 103 nonprofit organizations nationwide.

Ajay Verma, M.D., Ph.D., Associate Professor, USU SOM Department of Neurology, published a military relevant paper in the September 2002 issue of Cancer, *Immunohistochemical expression of erythropoietin and erythropoietin receptor in breast carcinoma*. And, in the November 21, 2003, Volume 302, issue of Science, Doctor Verma was featured in an article that discussed his discovery of carbon monoxide (CO) as a neurotransmitter, in addition to neuroscientists from Johns Hopkins, whose work includes nitric oxide (NO) as a neurotransmitter. Unlike all other types of so-called neurotransmitters, a gas can be neither stored inside a neuron nor carefully controlled after its release, thus violating some sacred-held tenets of neuroscience. Until recently, CO was thought to be nothing more than a waste product of heme oxygenase-1, which breaks down the iron-containing pigment heme in aging red blood cells. Since the early 1990's, Ajay Verma, has been looking for other gaseous neurotransmitters to accompany nitric oxide.

Obstetrics and Gynecology - School of Medicine.

Departmental Overview. 2003 was a year marked by significant accomplishments in all aspects of scholarship - discovery, integration, clinical care, and teaching as well as in leadership and community service in Obstetrics and Gynecology. Of particular note, was the retirement, on June 30, 2003, of the founder of the Department's Research Division, **Prabir K. Chakraborty, Ph.D., Professor and Head of the Research Division**. Doctor Chakraborty became a pioneer in academic Obstetrics and Gynecology (OBG) when he was appointed by Douglas R. Knab, M.D., Founding Chair of the Department, to establish one of the earliest programs of research in OBG, which was dedicated to the discovery of new and critical knowledge and to providing an educational opportunity in research for faculty, fellows, residents, medical students, post-doctoral students, graduate, college, and even high school students. Doctor Chakraborty leaves a remarkable legacy following over 20 years in the Department. In fact, Doctor Chakraborty has continued to publish as an off-campus member of the OBG faculty; since his departure, he and his colleagues have published *Aberrant Interchromosomal Exchanges Are the Predominant Cause of the 22q11.2 Deletion* in Human Molecular Genetics, Volume 13, No. 4, on December 17, 2003.

Individual Contributions.

Colonel Andrew J. Satin, USAF, MC, Professor and Chair, USU SOM Department of Obstetrics and Gynecology, USU SOM Class of 1986, became the first USU SOM Graduate to be appointed a Department Chair at USU, following a national search. Doctor Satin is Board Certified in Maternal-Fetal Medicine and Obstetrics and Gynecology. As the Residency Program Director, he led the program from Provisional Accreditation status to Full Accreditation for the maximum possible length of five years. A nationally recognized expert in labor stimulation and labor management, Doctor Satin has authored over 100 peer-reviewed manuscripts, abstracts, and book chapters. In addition to his duties at USU, Doctor Satin serves as an Oral Examiner for the American Board of Obstetrics and Gynecology, a Member of the Editorial Board of Obstetrics and Gynecology, and he has been appointed by the American College of Obstetricians and Gynecologists to the Committee on Practice Bulletins - Obstetrics.

William H.J. Haffner, M.D., CAPT, USPHS (Retired), Professor, USU SOM Department of Obstetrics and Gynecology, stepped down as the Department Chair, during 2003. He has assumed special assignments from the Dean of the School of Medicine, to include serving as the Chair of the Student Promotions Committee. Doctor Haffner is active in the Armed Forces District. He has served, or is currently serving, on several American College of Obstetricians and Gynecologists (ACOG) committees, including the Committee on American Indian Affairs, the Committee on Practice Bulletins - Gynecology, and the Committee on Health Care for Underserved Women. Doctor Haffner is currently the Secretary-Treasurer of the Association of Professors of Gynecology and Obstetrics.

Lieutenant Colonel (P) Ernest G. Lockrow, MC, USA, Assistant Professor, USU SOM Department of Obstetrics and Gynecology, joined the Department, in 2003, after serving as the Chief of Gynecology at the Walter Reed Army Medical Center. Doctor Lockrow is the only gynecologist in the

Department of Defense who is certified on the DaVinci Robot. He performed the first ever laproscopic vesico-vaginal fistula repair with omental - J flap using the DaVinci Robot, in October of 2003. Doctor Lockrow is currently developing a Continuing Medical Education Program in Obstetrics and Gynecology at USU.

Colonel Christopher M. Zahn, USAF, MC, Associate Professor, USU SOM Department of Obstetrics and Gynecology, serves as Director of Clinical Clerkships. As Coordinator and Director for all clerkship sites, Doctor Zahn has initiated Problem Based Learning (PBL) into the curriculum and has modified the Objective Structural Clinical Examination (OSCE) to include case development and standardization. Certified in Obstetrics and Gynecology and Pathology, Doctor Zahn developed and directed a ***Gynecologic Surgical Pelvic Anatomy and Dissection Course***. In addition to his duties at the University, he served as the Air Force Consultant to the Surgeon General and as the Chair of the Air Force Section of the American College of Obstetricians and Gynecologists.

Pathology - School of Medicine.

Individual Contributions.

Robert M. Friedman, M.D. Professor and Chair, USU SOM Department of Pathology, provides nine hours of lecture in ***Pathology 2010***; he is an Instructor in ***Small Group Case Studies*** (eight hours); and, an Instructor in the ***Pathology Laboratory*** (where he serves as a substitute for all instructors). Doctor Friedman is a Member of the Board of Scientific Advisors at the Armed Forces Institute of Pathology; a Lecturer in the Graduate Education Courses in the USU SOM Department of Pathology and the USU Graduate School of Nursing; a Member of the USU Policy Committee for Names and Honors; and, a Special Assistant to the Director of the United States Military Cancer Institute. Doctor Friedman's research activities include a National Cancer Institute grant on *Inhibition of Human Oncogene Expression by Interferon*, a study of the mechanism of tumor differentiation induced by treatment with interferon. This year, his research has uncovered important parameters of the stimulatory effect of nuclear regulatory factor IRF-1 on cellular growth. The research funded by this grant has also studied the role of the enzyme *lysyl oxidase* on cell transformation and the relation of this effect to IRF-1. These findings appear to be of significance in the genesis and the possible treatment of cancers. His publications are on the *Deregulated Expression of Interferon Regulatory Factor* and on *Oncogene-Transformed Mouse Fibroblasts*. Doctor Friedman also has two additional manuscripts in preparation. Recently, Doctor Friedman was honored by a reception at the United States Embassy in New Delhi for his 20 years of contributions to Indo-US Collaborative Research in the Biomedical Sciences. He was also named Elected Honorary Member of the International Society for Interferon and Cytokine Research in recognition of his outstanding scientific and administrative achievements in the field of cytokine research. He serves on the Editorial Board of the Journal of Interferon and Cytokine Research; and, he is an Adjunct Professor in the Department of Pathology at Georgetown University. Doctor Friedman also serves as an *Ad Hoc* Reviewer for Nucleic Acid Research, the Journal of Virological Methods, and Analytical Biochemistry. ***After 24 years of dedicated leadership and service to the USU SOM Department of Pathology and USU, Doctor Robert Friedman announced, in late October of 2003, that he would step aside as Chair upon the completion of a search process for a new Department Chair. He will remain on the faculty as a Professor of Pathology with increasing roles and responsibilities in the United States Military Cancer Institute.***

Colonel Richard M. Conran, MC, USA, Professor, USU SOM Department of Pathology, is a Consulting Pathologist to the National Naval Medical Center (NNMC) and the Department of Pediatric Pathology at the Armed Forces Institute of Pathology (AFIP). He also serves as the Course Director for the ***Pathology MSII Course***; and, he is as an Instructor in the ***Pathology Laboratory Course*** and the ***Pathology MSII Small Group Case Studies***. As part of his collaborative efforts, he is a Lecturer in the EID Graduate Education Program on ***Fundamentals of Infectious Diseases***; and, he is a Lecturer in BioChemistry on ***Clinical Correlation in Histology***. Doctor Conran provides pathology support for the ***Squamous Cell Carcinoma of the Esophagus Protocol*** at the National Institutes of Health and for the ***Quick Clot Protocol*** at USU. In addition, Doctor Conran serves as a Co-Investigator on the ***DNA Identification Protocols*** at the Armed Forces Institute of Pathology.

Sara Contente, Ph.D., Research Assistant Professor, USU SOM Department of Pathology, is a member of the USU IACUC Committee; she is currently working on the mechanism of action of an important tumor suppressor gene; this work continues to receive wide and favorable notoriety. As a part of her collaborative efforts, Doctor Contente serves as a Lecturer on *Techniques in Cellular and Molecular Biology (MCB0801)* and *Nucleic Acid Probes and Hybridization and DNA Sequencing and Transection*.

Mary Lou Cutler, Ph.D., Associate Professor, USU SOM Department of Pathology, taught courses for the Molecular and Cell Biology (MCB) and Pathology Graduate Education Programs; in addition, she is the co-director of the MCB Cell Biology Courses for graduate students. (During 2003, Doctor Cutler was the Co-Course Director of *MCB 507-508, Cell Biology I and II*; she was also a Lecturer in *MCB 508, Cell Biology II*; and, she presented lectures on *Techniques in Cell and Molecular Biology* and *Advanced Virology*.) Currently, there is one graduate student working full time on her dissertation research under Doctor Cutler's direction; and, one student from the MCB Program is completing a three-month rotation in her laboratory. Her research program focuses on the regulation of mammary epithelial cell differentiation. In particular, she is interested in the mechanism by which activation of the Ras pathway disrupts mammary epithelial differentiation. The Ras pathway is frequently activated by signaling from the ErbB receptors in breast tumors, and activation of this pathway is characteristic of more aggressive tumors. Doctor Cutler and her staff are interested in determining which of the effector pathways activated by Ras is responsible for the block in differentiation. Her recent findings have demonstrated that activation of the Raf-Mek-Erk signal transduction pathway by the epidermal growth factor family of mitogenic peptides results in the inhibition of mammary differentiation by inhibiting Stat5, an obligate transcription factor for the expression of genes involved in lactogenesis. In addition, the activation of the Ras pathway prevents the normal down-regulation of the expression of Mek-1 and other kinases and scaffolding proteins that constitute the Raf-Mek-Erk signaling complex. The research in her laboratory is currently supported by two grants. In addition to the graduate students, there are two post-doctoral fellows and a technician working in her laboratory. The laboratory has published one paper and has submitted three manuscripts for publication in the last six months. Doctor Cutler was in the process of preparing three grant applications for submission in May and June of 2004, to include a new NIH R01 application. Her duties as the Associate Director for Basic Science of the United States Military Cancer Institute (USMCI) involve promoting basic science in cancer research at USU and at the other USMCI institutions. This year, the USMCI is initiating a small funding program for collaborative cancer research. She prepared the funding announcement and arranged for the review of applications for collaborative grants in breast and prostate research. These grants will be available to researchers at USU. In addition, Doctor Cutler arranged seminars for invited speakers and organized the scientific program for the USMCI annual meeting. As the Associate Director for Basic Science, she serves on the USMCI Executive Committee and reports to the USMCI Committee of Scientific Advisors on basic science research. Doctor Cutler serves on two grant review committees. One is the USU Merit Review Committee and the other is a study section for the Congressionally Mandated Medical Research Breast Cancer Program. In addition, Doctor Cutler serves on the Molecular Biology Advisory Committee to the American Type Culture Collection. She also is a member of the USU Biohazard Committee; she served as a member of the Search Committee for the Director of the Molecular and Cellular Biology Graduate Program; she is a lecturer in the FAES Course, *Genetics of Cancer*; and, she serves as a member of the National Institutes of Health (NIH) Breast Cancer Think Tank.

Michael J. Daly, Ph.D., Associate Professor, USU SOM Department of Pathology, successfully submitted a Patent Application to the United States Patent and Trademark Office, sponsored by USU on *Radioactive Waste Detoxification*. Doctor Daly was appointed to serve on the Committee on the Origins and Evolution of Life, National Academy of Sciences, from 2003 through 2005; and, from 2000 through 2002, he served as a member of the Committee on Planetary and Lunar Exploration, National Academy of Sciences. Between 1999 and 2001, Doctor Daly served as a member of the Planetary Task Group for the National Academy of Sciences; and, from 1997 to present, he has served on Peer Review Panels for the Department of Energy. From 2002 to the present, he has supported the efforts of the USU Homeland Defense Committee, through the Broadcasting of Education Programs to the Armed Forces. From 2001 through 2004, Doctor Daly has been serving as a member of the USU Radiation Safety Committee. In addition to these activities, Doctor Daly obtained \$40,000 from the Department of Energy to service and recharge the USU Co-irradiator. On February 4, 2003, Doctor Daly was featured on Swedish Television (SVT), in a two-part documentary, *Life at Stake*; on January 6, 2003, he was featured by National Public Radio in *Radiation Resistance and Ring Chromosomes*. And, Doctor Daly's *Genome Informatics: Deinococcus* was published in GEO MAGAZINE in Germany, on September 8, 2002. His work has been featured in the media, since his appearance on ABC Nightline with Ted Koppel, in September of 1999. Beginning in 2000 throughout 2003, Doctor Daly served as a Lecturer and presented ***Laboratory Aspects of Biowarfare (PA0530)***; and, since 2001, he has lectured on ***Techniques in Cellular and Molecular Biology (MCB08-01)***. He serves as a Ph.D. Thesis Advisor for one student; and provides continuing education for eight post-doctoral and two pre-doctoral students for the Department of Pathology. Doctor Daly continues to study developing technologies for treating a \$250 billion Cold War waste legacy.

Gabriela S. Dveksler, Ph.D., Associate Professor, USU SOM Department of Pathology, serves as the Chair of the USU Biosafety Committee; and, she serves as the Chair of the MCB Program Admissions Committee. Doctor Dveksler was selected by the National Institutes of Health (NIH) to serve as an *Ad Hoc* member of HED-1 Study Section, at the Institute of Child Health and Human Development. She also served as the Editor of PCR Primer: A Laboratory Manual, published by Cold Spring Harbor Laboratory Press, 2nd Edition, and released, in May of 2003. Doctor Dveksler serves as a Course Director for ***Techniques in Molecular and Cellular Biology (MCB801)*** at USU; and, ***Trac 9*** at FAES, NIH. She is also serving on three Thesis Committees for Pathology, Neuroscience and Molecular and Cell Biology graduate students; and, she serves as a mentor for two Molecular and Cell Biology graduate students.

Philip M. Grimley, M.D. Professor, USU SOM Department of Pathology, serves as a ***Pathology Core Course*** Lecturer on anemias and lymphomas. He is the Primary Instructor for the ***Pathology Laboratory Sessions*** with 24 students; and, he serves as an Instructor in small group cases with 8 students. In ***Histology for Pathologists***, he lectures on (1) blood and (2) the cardiovascular system; in the ***Pathology for EID Program***, he lectures on Tissue Pathology of Virus Infections (with clinical correlations); in the ***Biowarfare Course***, he presents a lecture on Insect Borne Virus Pathogens. In the ***Pathology Graduate Courses***, he lectures on Pathogenesis (CML) and, in the ***Interferon Course*** he lectures on IFN Antiproliferative Mechanisms (molecular signals). In the ***Molecular and Cell Biology Course (MCB508 Core Course)***, he lectures on (1) Cell Cycle and (2) Apoptosis. Doctor Grimley is a member of the College of American Pathologists Laboratory Accreditation Program and serves as a Commissioner for the State of Maryland. His participation contributes to the accreditation of five

military laboratories, which would otherwise need to supply personal and time to maintain accreditation. Doctor Grimley is also a member of the Study Section, of the DoD Breast Cancer Program. He is an Adjunct Professor at the University of Maryland; and, he participates in seminars and works with graduate students in the development of a Biowarfare Training Initiative. He is an active member of the United States Military Cancer Institute (USMCI) and serves on the USMCI Tissue Committee and participates in USMCI symposia. As a member of the USU Merit Review Committee, he conducts monthly patent applications reviews for the University. As a member of the USU Promotions Committee, he conducts quarterly reviews of faculty appointments and promotions. He is also an Ad Hoc Reviewer for the Journal of Immunology and the Journal of Biochemistry. Doctor Grimley's research is focused on *Therapeutic Modulation of Apoptosis*. He has obtained intramural funding from USU and has submitted for extramural support; he has two United States patents; and, he presented during USU's Research Day.

Elliott Kagen, M.D., Professor, USU SOM Department of Pathology, provides three lectures and 33 laboratory instruction sessions in the ***MSII General and Systemic Pathology Course*** with approximately 69 student contact hours. Doctor Kagen provides extensive lectures during the school year: 1) he lectures for the Pathology Graduate Student Program on *Oxidants and Acute Respiratory Distress Syndrome* (Topics in ***Pathogenesis Graduate Course*** - approximately two student contact hours); 2) he lectures in the Pathology Graduate Student Program on *Mitogen-Activated Protein Kinases in Lung Injury* (Topics in ***Pathogenesis Graduate Course*** - approximately one student contact hour); 3) he provides the ***Lecture and Microscope Session*** to the Emerging Infectious Disease Graduate Program on *Lung Infections*; 4) he lectures for the ***USU Occupational and Environmental Medicine Residency Program (PMO542)*** on *Occupational Carcinogenesis* - approximately two student contact hours; 5) he lectures on *Bioregulators as Instruments of Terror* in the Johns Hopkins University Graduate Course, entitled: ***BioTerrorism, Science and Policy: The International Scientific and Diplomatic Challenge of the 21st Century***; and, 6) he lectures in the ***Biotechnology Program*** of the Zanvyl Kragler School of Arts and Sciences, John Hopkins University, on *Scientific and Medical Aspects of Bioterrorism and Biowarfare; Scientists and Health care Community Preparing for the Challenge of Bioterrorism*; and, *Filoviruses as Possible Bioterrorism Agents*. In addition, Doctor Kagen serves as a regular Reviewer of Manuscripts for the American Journal of Respiratory and Critical Care Medicine, the American Journal of Respiratory Cell and Molecular Biology, Experimental Lung Research, and Environmental Health Perspectives. Doctor Kagen served as an *ad hoc* Reviewer for the National Institutes of Health (NIH) Chemical Pathology Study Section, Oncological Sciences Integrated Review Group, in Washington D.C.; and as an *ad hoc* Member of the NIH Lung Biology and Pathology Study Section in Washington, D.C., since May of 2002. Doctor Kagen has also served as the Chairman of the Technical Review Panel for the Nebraska Cancer and Smoking Disease Research Program, in Omaha, Nebraska, on April 19, 2003 (approximately 40 hours commitment). Since February of 2002, Doctor Kagen has been a member of the External Advisory Committee, Xavier University/Tulane University NIEHS-funded ARCH Research Program; and, he has served as an *ad hoc* Reviewer for the Cooperative Grants Program of the United States Civilian Research and Development Foundation (CRDF), since July of 2001. In addition, Doctor Kagen has served as an *ad hoc* Reviewer for the Veterans Administration Merit Review Board, since March of 1987. Doctor Kagen is the Principal Investigator on a DoD research grant, *A Pathogenesis of Filovirus Infection by Aerosol Challenge*, with a project period from October 1, 2002 through September 30, 2003. And he is the Principal Investigator on an exploratory NIH research grant: *Biodefense Against an Aerosolized Ebola Threat*, which is funded from July 1, 2003, through June 31, 2005; his application

received a Priority Score of 1.26 by the Lung Biology and Pathology Study Section in February of 2003, purportedly the best-ranked application of all proposals submitted on that round to this particular Study Section. During the past year, Doctor Kagan was a Distinguished Visiting Pulmonary Scholar to the Duke University Medical Center, North Carolina State University College of Veterinary Medicine, and the National Institute of Environmental Health Sciences, on March 4-6, 2003. He was a Platform Speaker on the Panel on Bioterrorism at the Society of Toxicology Annual Meeting held in Salt Lake City, Utah, on March 10, 2003; his presentation was entitled, *Speculations on Bioregulators as Instruments of Terror*. He was a Distinguished Visiting Scientist at the University of California Davis, Center for Comparative Respiratory Biology and Medicine, on May 22-23, 2003; and, he was a Platform Speaker at the 99th American Thoracic Society International Conference, held in Seattle, Washington, on May 19, 2003.

Colonel Morton H. Levitt, USAF, MC, USU SOM Department of Pathology, serves as a Laboratory Instructor for 24 students in ***Pathology 2010***. He is also a Small Group Instructor and teaches 16 cases to eight students over four sessions. In the course of his instruction, Doctor Levitt prepares and delivers three lectures on Male GU, Bladder, and Nutrition. Doctor Levitt is the Chief of Clinical Pathology Education; and, he is the Director of Clinical Clerkships and the Webmaster for the Department Web Site. In addition, Doctor Levitt is the Course Director for ***Pathology 520***, for which he revised the syllabus, recruited and scheduled faculty, prepared a 60-page syllabus, prepared lectures and was responsible for the administration of the Course. He is the Co-Director of ***Pathology 531***, for which he has revised the syllabus, recruits and schedules faculty, and provides administrative oversight. At the Walter Reed Army Medical Center, Doctor Levitt teaches residents in ***Surgical Pathology***. Doctor Levitt serves as the Senior Officer Advisor for the Air Force and reviews all Air Force performance/fitness reports and advises the USU President and USU Brigade Commander on all promotion activities for the active duty officers assigned to the University; he also attends Management-Level Reviews, as required at the Pentagon. Doctor Levitt also has served as the Chair of the USU Controlled Substances and Alcohol Inventory Board; as such, he developed policy recommendations, conducted annual surveys of all USU Departments, and prepared annual reports for the USU President. He has also provided service as an Admissions Interviewer. During each year, Doctor Levitt performs surgical Pathology, cytopathology and quality assurance services for the Walter Reed Army Medical Center (WRAMC), where he also teaches residents. As a Member and Vice Chair of the College of American Pathologists (CAP) Information Committee, he develops medical informatics courses, distance learning materials, and the CAP WWW Home Page; he also sets national policy standards for laboratory accreditation and coordinates, directs, and recruits faculty and teaches eight-hour Computer Roundtable Courses at the CAP national meetings. As a member of the CAP House of Delegates, he represents the State of Maryland and attends local briefings and legislative updates/training, as required. Doctor Levitt conducts on-site laboratory accreditation inspections at the request of the Regional CAP Commissioner or other CAP LAP Commissioners; he serves as either a team leader or team member. As a team leader, he is responsible for the recruitment of inspectors, all administrative matters, and the conduct of the inspection, as well as, leading inbriefs/outbriefs at the facility being inspected. He is also a member of the Duke University Medical Alumni Council; and, as such, he develops policy for medical alumni CME and other activities; he plans and coordinates a regional CME activity once each year as a Council Member. As a member of the College of American Pathologists, he attends national and regional workshops and seminars; and, as a member of the Armed Forces Institute of Pathology, he attends miscellaneous short and long courses, including the ***Anatomic Pathology Review and Update***. In addition, Doctor Levitt is an active member of the Maryland Society of Pathologists and attends monthly CME dinner meetings.

Radha K. Maheshwari, Ph.D., Professor, USU SOM Department of Pathology, actively serves as: a member of an NIH Study Section; a member the USU Graduate Education Committee; a Program Director in the USU Graduate Education Program; as a member of the Henry M. Jackson Foundation Committee for Graduate Fellowship; a member of the University BSL-3 Committee; a member of the United States Military Cancer Research Institute (USMCI); a faculty member in the USU SOM Molecular and Cell Biology and Emerging Infectious Diseases Graduate Education Programs; a member of the Graduate Students Thesis Committee; a mentor to area high school students; a coordinator of the Indo-US Activities at USU; and, as an Adjunct Professor at the Birla Institute of Technology and Science located in Pilani, India. During 2002, Doctor Maheshwari organized and lectured in two courses on *Interferons* and *Topics in Pathogenesis*. He also lectured in the *Emerging Infectious Diseases Course* and lectured and participated in the *Bioterrorism and BioDefense Course*; and, during 2003, he mentored both Graduate Education Students and Post-Doctoral Fellows. Doctor Maheshwari was an Invited Speaker at an *INDO-US Colloquium on Molecular Targets of Xenobiotic Exposure: Role in Susceptibility of Diseases*, held at the Industrial Toxicology Research Center in Lucknow, India, in January of 2003. He also was an Invited Speaker at an International Symposium and presented *Emerging Trends in Genomics and Proteomics, Education and Research* at the Birla Institute of Technology and Science in Pilani, India, during January of 2003. Significantly, in January of 2003, Doctor Maheshwari was recognized as the Organizer of 20 Years of INDO-USU Collaborative Efforts in Research and Education; and, he edited a *Summary of 20 Years of Collaborations*. Also during January of 2003, Doctor Maheshwari chaired the *Session on Bioremediation of Toxicants* at the Birla Institute of Technology and Science; and, he was an Invited Speaker at a symposium held at the Army Hospital in New Delhi, India, which was organized by the Armed Forces Medical Services, New Delhi, India, in January of 2003. On May 15-15, 2002, he was an Invited Speaker and presented *Combined Effects of Chemical and Weaponized Agents: Prevention and Treatment Strategies*, at a Symposium on Bioterrorism, during the USU Research Day activities. On June 9, 2002, he was an invited member to the International Federation of Shock Societies Council Meeting held in Big Sky, Montana. And, on March 15-16, 2002, Doctor Maheshwari was an Invited Speaker and presented *Overview on 20 Years of Indo-USU Programs: Present, Past and Future* at the International Conference on Population, Development and Environment, held at the Birla Institute of Technology and Science, in Pilani, India; he also chaired a Session on Environment and Health, during the same conference.

Clifford M. Snapper, M.D., Professor, USU SOM Department of Pathology, continued as a Lecturer in the *MSII Pathology Course*, as well as graduate courses in Pathology, the Emerging and Infectious Diseases Program, and the Molecular and Cell Biology Program. He was recently appointed to the Search Committee for the new Chair for the Department of Pathology (Doctor Friedman announced in October of 2003 that he would be stepping down as the Chair of Pathology once the selection process for a new Chair has been completed). Doctor Snapper also continued to serve on the Executive Committee of the Molecular and Cell Biology Program. In addition, Doctor Snapper has established and served as the Director of the Institute for Vaccine Research (IVR), at USU, during 2003. He was able to do so with the support of the USU SOM Research and Education Endowment Fund. The IVR, centered in the Department of Pathology, is an interdepartmental effort, including the Department of Pediatrics, for the development of novel, universal strategies for enhancing antibody production to poorly immunogenic proteins, peptides, and polysaccharides. *These antigens serve as vaccine targets for many bacterial and viral pathogens of clinical relevance to both military and civilian populations.* In order to facilitate commercial development of any promising approaches and/or products arising from the basic and pre-

clinical studies conducted at the IVR, a Cooperative Research and Development Agreement (CRADA) was established between USU, Biosynexus, Inc., a Rockville, Maryland-based biotechnology company specializing in anti-bacterial immunity, and the Henry M. Jackson Foundation for the Advancement of Military Medicine (HMJF). The IVR currently has three major projects: 1) development of a novel protein carrier for protein-polysaccharide conjugate vaccines; 2) development of a novel DNA-RNA adjuvant for stimulating humoral and cell-mediated immunity; and, 3) evaluation of a novel reagent for preventing bacterial septic shock. The IVR has submitted a manuscript to the journal, *Vaccine*, on studies completed, which investigates the adjuvanting properties of IVR's novel DNA-RNA immunostimulatory hybrid molecule. In addition to Doctor Snapper, the IVR currently has three members, a senior Ph.D. scientist who serves as the Deputy Director, a post-doctoral fellow, and a lab technician. Doctor Snapper's laboratory has continued its studies on the mechanisms underlying the antibody response to *Streptococcus pneumoniae* in vivo. These studies include the role of dendritic cells, T cells, cytokines, co-stimulatory molecules, suppressor mechanisms, and Toll-like receptors. The mechanisms, underlying the induction of antibody isotype responses specific for both proteins and polysaccharides expressed by the bacteria, are compared and contrasted. In addition to revealing novel basic immunologic processes, these studies have implications for the design and development of vaccines, and other immunotherapies directed against extracellular bacteria. His laboratory currently has three post-doctoral fellows, one graduate student from the Molecular and Cell Biology Program, and one graduate student from the Emerging Infectious Diseases Program. Since the beginning of 2003, Doctor Snapper has published four senior author articles in peer-reviewed journals (three in *The Journal of Immunology* and one in *Infection and Immunity*), a review on dendritic cells in *Microbes and Infection*; and, a chapter on the immunology of *Streptococcus pneumoniae* for a book entitled, *The Pneumococcus*. He also submitted a new R01 National Institutes of Health (NIH) grant for studying the role of Toll-like receptors in the innate and adaptive immune response to *Streptococcus pneumoniae*, which was pending review. Doctor Snapper has joined a multi-center collaborative effort to develop a new vaccine for *Streptococcus pneumoniae* that would be practical for the developing world. In this regard, a letter of intent was submitted to the Bill and Melinda Gates Foundation, via the NIH, for funding. He also is a Co-Investigator on an NIH Shared Equipment grant application to obtain funding for a new Electronic Cell Sorter. During 2003, Doctor Snapper was selected to the Editorial Board of the journal, *Infection and Immunity*; and, he has continued critically reviewing manuscripts for *The Journal of Experimental Medicine*, *The Journal of Immunology*, *Infection and Immunity*, and *Vaccine*.

Colonel J. Thomas Stocker, MC, USA, Professor, USU SOM Department of Pathology, serves as a Lecturer in the ***MSII Pathology Course***; he also is an Instructor in both the ***MSII Laboratory Course*** and the ***MSII Small Group Sessions***. As further examples of his collaborative support, Doctor Stocker was a Lecturer in the following: the ***Histology Course***; the ***Pediatric Seminars***; the ***CPC Conferences*** at both the Walter Reed Army Medical Center (WRAMC) and the National Naval Medical Center (NNMC); the ***Pathology Seminars*** at WRAMC and NNMC; the ***Public Health Course*** at USU; and, ***Autopsy*** at NNMC. During 2003, Doctor Stocker also served as a consultant for Pediatric and Pulmonary Pathology at the Armed Forces Institute of Pathology (AFIP); and, as a consultant for the Department of Defense on Legal Issues and Pediatric Pathology. He is also an Adjunct Professor of Pathology at the Georgetown University Medical School and Past President of the Society for Pediatric Pathology. His major interests include Pediatric Pulmonary Pathology, including acquired and congenital disorders such as Bronchopulmonary Dysplasia and Chronic Lung Disease of Premature Infants, Infantile Lobar Emphysema, Congenital Pulmonary Airway Malformation, and Sequestrations of the Lung.

Pediatrics - School of Medicine.

Departmental Activities.

Pediatric Hematology/Oncology Program. *The following published articles are from the National Capital Consortium Pediatric Hematology/Oncology Subspecialty Residency Program Residents.*

Major Vinod Gidvani-Diaz, USAF, MC, USU SOM Class of 1996, and Colonel Gary D. Crouch, USAF, MC, Associate Professor, USU SOM Department of Pediatrics, Program Director, Subspecialty Residency Program, published *Telltale Markings: Medication Error Presenting as Altered Mental Status in an Oncology Patient*, Pediatrics in Review On-Line, in January of 2004. Doctor Gidvani-Diaz is a Teaching Fellow in the USU SOM Department of Pediatrics.

Joanne Sutton, LCDR, USNR, MC, Assistant Professor, USU SOM Department of Pediatrics, graduated from the National Capital Consortium Subspecialty Residency, in 2002; she is currently on staff at the Portsmouth Naval Medical Center. The following publications, written in collaboration with her colleagues, result from her work as a Pediatric Hematology/Oncology Subspecialty Resident: 1) *Increased Risk for Aplastic Anemia and Myelodysplastic Syndrome in Individuals Lacking Glutathione S-Transferase Genes*, Pediatric Blood and Cancer, 42(2), pages 122-126, February, 2004; this work was also presented as a platform presentation at the American Society of Pediatric Hematology/Oncology Annual Meeting in May of 2003; and, 2) *Genomic Instability in Bone Marrow Failure Syndromes*, the American Journal of Hematology, accepted for publication, in December of 2003.

The Department of Pediatrics Education Section Continues to Offer the Military Medical Humanitarian Assistance Course (MMHAC) to Uniformed Primary Care Providers from Around the World. Under the direction of its **Executive Director, Lieutenant Colonel (promotable) Jeffrey Lee Longacre, MC, USA, Assistant Professor, USU SOM Department of Pediatrics,** this course provides military health care workers with the knowledge and skills essential for the care of civilian populations during complex humanitarian crises. The two-day course emphasizes the perspective of population health and vulnerable populations in an austere environment of natural or man-made disasters. Unique interactive scenarios, taken from actual experiences of the instructors, bring attention to the strengths and weaknesses of the myriad of responders to any crisis. *The course is sponsored by the USU Department of Pediatrics and accredited for continuing medical education (CME) credit by the USU Office of Continuing Education for Health Professionals.*

Additional Activities of the USU Pediatric Education Section. The USU Pediatric Education Section, upon invitation, conducted a medical education workshop entitled, *Students' Clinical Observations of Preceptors (SCOOP)*, at the 37th Annual American Academy of Pediatrics/Uniformed Services Pediatric Seminar 2003, held in Washington, D.C. The Pediatric Education Section was also invited to conduct a medical education workshop entitled, *Students' Clinical Observations of Preceptors*

(SCOOP): Focusing Students' Observations of Preceptors in a Clinical Setting, at the Council of Medical Students Education in Pediatrics (COMSEP) Annual Meeting 2003, held in Broomfield, Colorado. *The Department of Pediatrics Education Section continues to offer the Uniformed Services Faculty Development Seminars (USFDS). Under the direction of its Executive Director, Doctor Longacre, a variety of over 40 interactive medical education seminars are available for selection by the host site.* USU faculty subject experts facilitate seminars and workshops as well as provide professional consultation on medical education issues relevant to each specific program. Several pediatric training centers, such as the Keesler Air Force Medical Center, in Biloxi, Mississippi, and the David Grant Air Force Medical Center, at the Travis Air Force Base, California, benefited from this unique exportable faculty development opportunity. The course is sponsored by the USU Department of Pediatrics and accredited for continuing medical education (CME) by the USU Office of Continuing Education for Health Professionals.

The 17th Annual Pediatric/Pediatric Surgery Symposium. Felipe E. Vizcarrondo, M.D., Assistant Professor of Pediatrics, and Lieutenant Commander Jeffrey R. Lukish, MC, USN, Assistant Professor of Surgery and Pediatrics, co-hosted the 17th Annual Pediatric/Pediatric Surgery Symposium, on June 12, 2003. The topic was *Multi-System Trauma in the Pediatric Patient*. Martin Eichelberger, M.D., Director, Emergency Trauma and Burn Services, Children's National Medical Center, and Professor of Surgery and Pediatrics, George Washington University School of Medicine, delivered the ***4th Annual C. Everett Koop Distinguished Lecture***. Doctor Eichelberger's presentation was entitled, *Injury Control: The Vaccine for Pediatric Trauma*. Other speakers were Dorothy Bulas, M.D., Director, Program for Diagnostic Imaging, Division of Diagnostic Imaging and Radiology, Children's National Medical Center; Kevin Creamer, M.D., LTC, MC, USA, Director, Pediatric Intensive Care Unit and Inpatient Services, Walter Reed Army Medical Center, Assistant Professor of Pediatrics, USU SOM; and, Cynthia Shields, M.D., LTC, MC, USA, Staff Anesthesiologist, Walter Reed Army Medical Center, Director of Education and Assistant Professor, USU SOM Department of Anesthesiology.

The Pediatric Endocrinology Program. During 2003, the Pediatric Endocrinology Program in the USU SOM Department of Pediatrics experienced another productive year for military medicine: 1) ***nine articles were published in peer-reviewed literature*** by investigators in the program; 2) ***five abstracts were published*** by investigators in the Pediatric Division; 3) ***thirteen abstracts were presented*** by investigators at: the Uniformed Services Section, American Academy of Pediatrics Conference, held in Washington, D.C., on March 16-19, 2003 (eight presentations); the Endocrine Society Conference, held in Philadelphia, Pennsylvania, in June of 2003 (four presentations); and, the AACR-NCI-EORTC International Conference on Molecular Targets and Cancer Therapeutics, held in Boston, Massachusetts, during November of 2003 (one presentation); and, 4) provided ***sixteen invited lectures and symposia*** at: Grand Rounds, Wilford Hall Air Force Medical Center (three presentations); Grand Rounds, Wright State University (two presentations); the Washington Hospital Center (one presentation); the National Institutes of Health (one presentation); the American Academy of Pediatrics, Orlando, Florida (four presentations); the Children's National Medical Center, Bethesda, Maryland (three presentations); the Foundation for Advanced Education in the Sciences (one presentation); and, the Endocrine Grand Rounds, Brown University School of Medicine, in Providence, Rhode Island (one presentation).

Individual Contributions.

Ildy M. Katona, M.D., Professor of Pediatrics and Medicine, Chair, USU SOM Department of Pediatrics, retired from 23 years of active duty as a Navy Captain, in October of 2003. Following a national search, on November 14, 2003, the Dean of the SOM announced that Doctor Katona had been selected to serve as the Chair of the USU SOM Department of Pediatrics. During the past year, Doctor Katona served in the following positions of recognition: as a Clinical Guest Scientist, Pediatric Rheumatology, National Institute of Arthritis, Musculoskeletal, and Skin Diseases, National Institutes of Health; a Member of the Residency Review Committee (Pediatrics) of the Accreditation Council of Graduate Medical Education; an Associate Editor for the *Journal of Immunology*; and, a Visiting Professor and Rheumatology Grand Rounds Speaker, presenting *The Spectrum of Streptococcal-Related Diseases: Rheumatic Fever and Beyond* at the Hospital for Special Surgery and Rockefeller University, New York, New York. In addition, Doctor Katona collaborated with Doctor Laura M. Mirkinson on the chapter, *Juvenile Rheumatoid Arthritis* in *Conn's Current Therapy*, 2003, R.E. Rakel and E.T. Bope, eds., W.B. Saunders Company, Philadelphia, Pennsylvania, pages 1059-1064.

Janice L. Hanson, Ph.D., Research Assistant Professor, USU SOM Department of Pediatrics, in collaboration with **Colonel Virginia Randall, MC, USA, Associate Professor, USU SOM Department of Pediatrics**, received funding from the United States Army Medical Research and Materiel Command (USAMRMC) to conduct a needs assessment of military families with children with life-threatening illnesses. This two-year grant is part of a collaborative project with the Walter Reed Army Medical Center, Children's Hospice International, and the Maryland Coordinating Center. The project will determine the needs of children with life-threatening illnesses and their families, analyze how the TRICARE benefit addresses those needs, assess existing community resources, and make recommendations for improving care and services. *Experiences with Exceptional Family Members*. With continued funding from the Health Resources Services Administration, United States Department of Health and Human Services, *Doctors Hanson and Randall furthered the involvement of patients and family members as advisors and co-teachers in medical education*. These advisors have chronic medical conditions and/or disabilities, or they have a child or other family member with a special need. They share their experiences with medical students, during all four years of the curriculum. A new activity developed with input from these advisors presents pediatric applications of evidence-based medicine. *Doctor Hanson convened focus groups of the advisors to develop descriptions of physicians' professionalism from the perspective of patients and parents, with plans to develop tools to teach and evaluate professionalism among medical students*.

Lieutenant Commander Christine L. Johnson, MC, USN, Assistant Professor, USU SOM Department of Pediatrics, NCA Site Coordinator - Third-Year Pediatric Clerkship, Fourth-Year Pediatric Programs Director, and Pediatric Grand Rounds Coordinator, was one of seventy individuals, selected nationally, to attend the Emerging Leaders Workshop of the Sixth National Environmental Public Health Conference: *Preparing for the Environmental Health Challenges of the 21st Century*, sponsored by the Centers for Disease Control (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR). As a participant of this elite group, Doctor Johnson collaborated with

public health professionals from around the Nation, to discuss public health challenges and opportunities. As a member of the American Academy of Pediatrics Committee on Environmental Health Education, Doctor Johnson was integral to the publication of the 2nd Edition of Pediatric Environmental Health, a comprehensive guide for clinicians on the identification, prevention, and treatment of childhood environmental health problems. Doctor Johnson continues to advocate for medical education in the area of *Pediatric Environmental Health* as an invited speaker at numerous academic and scientific meetings.

Lieutenant Colonel Woodson Scott Jones, USAF, MC, Assistant Professor, USU SOM Department of Pediatrics, Pediatric Clerkship Director, enjoyed, during 2003, the successful culmination of several years of collaborative work with the Children's Hospital of Pittsburgh in the evaluation of ear examination skills in residents, medical students, and other medical care providers. Given that the economic cost of ear infections annually ranges at the several billion dollar level, there has been a tremendous interest in evaluating and improving diagnostic skills of medical providers. Doctor Jones had two publications within six months, one in the most recognized publication in pediatric medicine, Pediatrics. The relevance of this research is evident in that the professional news publication, Pediatric Infectious Diseases in Children, included an article recognizing and further distributing Doctor Jones' significant findings.

Lieutenant Colonel (promotable) Jeffrey Longacre, MC, USA, Assistant Professor, USU SOM Department of Pediatrics, participated in numerous activities and made significant contributions, during 2003: 1) he participated on an interagency team consisting of members from the Environmental Protection Agency (EPA), United States Geological Survey (USGS), and the Armed Forces Institute of Pathology (AFIP) to evaluate the ecological and health effects following a copper mine tailing spill on the Island of Marinduque, by invitation of the Philippine government; 2) Doctor Longacre participated on the Clinical Judgment Analysis (CJA) Task Force, sponsored by the National Board of Medical Examiners (NBME). The Task Force was charged with developing a pilot program to assess and understand the cognitive mechanisms used by health care providers and trainees in making clinical decisions; 3) he contributed to the Ambulatory Pediatric Association's (APA) *Educational Guideline Revision Project*, by invitation from the APA. The Project updated the *Educational Guidelines* for pediatric trainees in order to reflect a more competency-based curriculum; and, 4) as Executive Director of the **Military Medical Humanitarian Assistance Course**, he was interviewed by the American Academy of Pediatrics (AAP) as one of the authorities featured in *Military Training Helps Doctors Treat Kids in Post-War Settings*; the interview was published in the AAP News.

Kathleen B. Madden, Ph.D., Research Assistant Professor, is a Co-Investigator on a five-year, \$1.25 million National Institutes of Health (NIH) grant awarded to **Terez Shea-Donohue, Ph.D., Research Professor of Medicine, USU, and Research Physiologist, United States Department of Agriculture (USDA)**, entitled, *GI Nematodes and Gut Functional Responses to Inflammation*. Doctor Madden's primary research interests are in the field of immuno-parasitology, with special emphasis on cytokine regulation of the host's response to infection with gastrointestinal nematodes. Doctor Madden works in collaboration with **Ildy M. Katona, M.D., Professor of Pediatrics and Medicine, and Chair, USU SOM Department of Pediatrics**, delineating cytokine regulation of mucosal mast cell hyperplasia;

and, she also works with Doctor Terez Shea-Donohue investigating neuroimmune regulation of gut epithelial cell function. Doctor Madden presented a portion of her research at the annual meeting of the American Gastroenterological Association, held in Orlando, Florida, in May of 2003.

Merrily P.M. Poth, M.D., Professor, USU SOM Department of Pediatrics, was responsible for significant contributions, during 2003: 1) Doctor Poth participated in the Food and Drug Administration (FDA) Section on Orphan Drugs - Peer Review Panel for Grant Proposals, in June of 2003; 2) she was a member of the National Aeronautics and Space Administration (NASA) Clinical and Operational Medicine Panel - Peer Review Committee, during October of 2003; 3) Doctor Poth presented a lecture at the American Academy of Pediatrics Annual Meeting, held in New Orleans, Louisiana, during the November 2003 Meet the Professor Session entitled, *Common Endocrine Problems*; and, she presented a two-hour seminar entitled, *Thyroid Disease for the Primary Care Pediatrician*; 4) she was an invited Discussant at the International Workshop, *Role of Environmental Factor on the Onset and Progression of Puberty*, held in Chicago, Illinois, in November of 2003; 5) she works on a research project, *Physiologic and Endocrine Correlates of Overweight and Obesity in African Americans and Caucasians*, as a co-investigator with **Patricia A. Deuster, Ph.D., Professor, USU SOM Department of Military and Emergency Medicine**, Principal Investigator; the project was funded by the Department of Defense Peer Review Projects, for approximately \$240,000 per year for four years, with funding beginning in October of 2003; and, 6) Doctor Poth published with her colleagues (to include an fourth-year USU SOM medical student, **Dalila Lewis**) an article entitled, *Inadequacy of In-School Support for Diabetic Children*, in Diabetes Technology and Therapeutics, Volume 5, pages 45-56, 2003.

Pharmacology - School of Medicine.

Departmental Activities.

Importance and Significance of Research Programs in the Department of Pharmacology. The Department of Pharmacology's areas of research are important in the development of the discipline of pharmacology and for biomedical education. The Department's research strengths are in the major areas of molecular and cellular neuropharmacology and signal transduction mechanisms. The Department expects these areas will produce many valuable insights and are most likely to prove to be fruitful topics for continued research concentration. ***These areas also have implications for military medicine.*** Extreme and rapid changes in the environment are a frequent feature on the battlefield. Department studies explore the molecular, cellular, and systems implications of changes in the chemical or physical environment of an organism. These basic studies on the mechanisms underlying cellular adaptations may lead to ways of reducing the negative consequences of such adaptations while retaining the valuable features of adaptations enhancing survival.

Individual Research in the areas of Molecular and Cellular Neuropharmacology and Signal Transduction Mechanisms.

Suzanne B. Bausch, Ph.D., Assistant Professor, USU SOM Department of Pharmacology, continues her studies on *Synaptic Alterations in Epilepsy*. Doctor Bausch's research is made possible by funding from the National Institutes of Health (NIH), *Axonal Sprouting of GABAergic Neurons in Epileptogenesis*, the Epilepsy Foundation, *Activity and NMDA Receptor Activation in Epileptogenesis*, and the Department of Defense Brain and Spinal Cord Injury Program (DBSCIP), *Glutamate Receptors in Epileptogenesis*.

Beata Buzas, Ph.D., Research Assistant Professor, along with Doctor Brian Cox, addresses studies on the *Regulation of Opioid Systems in Pain, Injury, and Drug Tolerance*. Doctor Buzas research is made possible by funding from the Department of Defense Brain and Spinal Cord Injury Program (DBSCIP), *Neurochemical m/Medicators in Penetrating Brain Injury*, and the Defense/Veterans Head Injury Program, *Opioid Peptides and Oxidative Stress*.

Thomas E. Cote, Ph.D., Associate Professor, USU SOM Department of Pharmacology, focuses his studies on *RGS Proteins and Regulation of Opioid Receptor Signaling*. In the area of Signal Transduction Mechanisms, Doctor Cote studies *RGS Proteins and Regulation of Opioid Receptor Signaling*.

Brian M. Cox, Ph.D., Professor and Chair, USU SOM Department of Pharmacology, along with Doctor Buzas, addresses studies on the *Regulation of Opioid Systems in Pain, Injury, and Drug Tolerance*. Doctor Cox's research is made possible through funding from the National Institutes of Health (NIH).

Jeffrey M. Harmon, Ph.D., Professor, USU SOM Department of Pharmacology, continues his studies on *Regulation of Glucocorticoid Receptor Expression*.

J. Brian McCarthy, Ph.D., Assistant Professor, USU SOM Department of Pharmacology, focuses on both the *Mechanism of Structural Plasticity in the Brain* and the *Regulation of Synaptic Receptor Targeting*. Doctor McCarthy's research on the *Development of Dendritic Protein Synthetic Components*, is made possible through funding from the National Institutes of Health.

Aviva J. Symes, Ph.D., Associate Professor, USU SOM Department of Pharmacology, focuses his research on *Cytokine Regulation of Neuronal Gene Expression*. The Department of Defense Brain and Spinal Cord Injury Program (DBSCIP) funds Doctor Symes's research on *Molecular Mechanisms of TGF-beta Signaling in Glial Scar Formation after CNS Injury*. The National Institutes of Health (NIH) funds his research on *Cytokine Regulation of VIP Gene Expression*; and, the Christopher Reeves Paralysis Foundation funds his study on *The Role of Smad3 in Glial Scar Formation After Spinal Cord Injury*.

The research programs of **Doctors Bausch, Cote, Cox, Harmon, McCarthy and Symes** address issues relating to adaptations of the nervous system following changes in activity associated with an altered cellular environment or with application of external stimuli, injury, or other stresses. Doctor Bausch's electrophysiology laboratory examines various aspects of synaptic adaptation following seizures. Doctor Bausch's laboratory is examining structural adaptations in GABA and Glutamate synapses in the hippocampus, following repeated episodes of seizure activity. Doctor J. Brian McCarthy's laboratory investigates the targeting of metabotropic glutamate receptors, identifies sorting signals, investigates the hormonal regulation of structural modification in the nervous system, and explores the role of local protein synthesis in dendrites toward synaptogenesis in the hippocampus.

The molecular mechanisms underlying neural injury are also studied in the laboratories of Doctors Aviva Symes and Brian Cox. The Symes and Cox laboratories examine the release of cytokines in response to neural injury and their roles in the regulation of expression of neuropeptides. Doctor Symes's laboratory explores factors regulating the expression of vaso-active intestinal polypeptide (VIP) in the brain resulting from neural injury. Doctor Cox's laboratory studies the expression of endogenous opioids and their relevance to the control of pain and inflammation following injury to the nervous system. The Cox and Cote laboratories are also studying adaptations in opioid peptide and receptor function related to chronic drug exposure.

Impaired function of neurotrophins and oxidative injury associated with hyperglycemia have been demonstrated. Doctor Harmon is studying the function of glucocorticoid receptors in the central

nervous system. Doctor Reid examines factors controlling differentiation of neural precursor cells during neural development. Diseases that affect nerve cells often result in permanent, life-altering disabilities. More than 5,000,000 Americans are currently afflicted by a neurodegenerative disorder. In peacetime, over 8,000 Americans with traumatic brain injury (TBI) are admitted to military and veterans hospitals. ***In combat, traumatic brain injury accounts for at least 14 percent of surviving casualties and a disproportionate amount of acute and long-term combat casualty care resources. Understanding the genes that control neuronal generation and specification in the central nervous system would likely figure prominently in treatments aimed at replacing damaged nerve cells.***

These research programs relate to issues of critical importance to health care in a military environment. Seizure generation, impairment of learning and/or memory, and neurodegeneration are frequent consequences of accidental and battlefield neural injuries. Improved understanding of these events should lead to more effective therapies. These studies can be of great benefit to military personnel who are at increased risk of sustaining a brain injury, during the performance of their duties. Defining the mechanisms, that control brain development and brain formation, is critical to our understanding of normal developmental processes and may be a key to treating Alzheimer's and Parkinson's Disease. Collectively, these studies of adaptations of the nervous system, following changes in the neuronal environment, indicate the wide range of adaptive processes, that can occur in the nervous system, and point the way to potential novel therapies.

Doctors Harmon, Symes, and Cote are actively involved in addressing aspects of the function of critical cellular transduction systems. Doctor Harmon's laboratory is exploring the role of abnormalities in glucocorticoid receptor expression and/or function in impaired function of the hypothalamic-pituitary-adrenal axis and in resistance to steroid therapy in cancer.

Doctor Symes is exploring the control of gene transcription in the nervous system by cytokines. These studies are beginning to elucidate fundamental changes in neural function that are induced by enhanced cytokine expression in neural injury.

Doctor Cote studies the role of GTP-binding proteins (G proteins) that mediate the actions of a very large number of neurotransmitters and hormones utilizing G protein coupled receptors (GPCR). Understanding the role of a novel family of G protein regulator molecules may lead to new understanding of the regulation of cell function by GPCR in general. ***These studies also have specific application to studies of tolerance and dependence to opiate drugs*** being studied in the laboratories of Doctors Cote and Cox.

These studies have important implication for the understanding of regulators of biologic functions at the molecular, cellular, and biological systems levels. ***Individual projects provide insight into the adaptive responses of the nervous system, the roles of glucocorticoids in post-traumatic stress disorders, and on cell communication and cell death in relation to the treatment of some cancers.***

The faculty members of Pharmacology consistently publish in peer-reviewed journals, serve as invited speakers at national and international meetings, and contribute substantial professional service at area High Schools, on boards of professional associations and societies, and as mentors and consultants in Summer Research Internship in Biological Sciences Programs.

*(See Section I, UNIVERSITY HONORARY DEGREES, AWARDS AND RECOGNITION, University Medal Recipients, 2003, for the posthumous tribute to **John Sarvey, Ph.D., USU SOM Professor of Pharmacology and Neuroscience**, who died on August 20, 2003.)*

Preventive Medicine and Biometrics - School of Medicine.

Departmental Activities.

The Division of Aerospace Medicine has been providing course work in the area of Aviation Physiology for the past four years as a specialty track in the Master of Public Health Program offered by the Department of Preventive Medicine and Biometrics. This track consists of five courses: ***Aviation Operational Physiology I and II; Aviation Human Factors; Aviation Physiology***; and, ***Special Topics in Aviation Physiology***. This course of study prepares students for a career in the military as an Aviation Physiologist. Since its beginning in 1999, seven students have completed the program and three additional students have audited the course. Both of the students, who participated in the program during the 2000-2003 term, were accepted into the United States Navy's Program of Aerospace Physiology. The Division is expanding the program each year; the 2003 emphasis incorporated additional mishap investigation techniques; plans are to continue in this area, during 2004, bringing in a modeling segment. And, there are additional plans to develop a course in Hyperbaric Medicine, during 2004.

Division of Environmental and Occupational Health. The Environmental and Occupational Health (EOH) Division is responsible for the programs leading to the Ph.D. in Environmental Health Science as well as the Environmental and Occupational Health and Health Physics Master of Science in Public Health (MSPH) Degrees. The first Ph.D. in Environmental Health Science was granted in May of 2003. Three Navy officers continue in the Ph.D. Program and 13 Navy, Air Force, Army, and Public Health Service officers are enrolled in the MSPH Program. The EOH faculty continue to provide support for the United States Marine Corps Chemical and Biological Incident Response Force (CBIRF), which includes formal classroom and laboratory training in gas chromatography/mass spectrometry. The support also provides CBIRF with continuing field-training experience and technical expertise during live agent training exercises and during times of incident response. The Division's role in military relevant research has rapidly expanded. ***Collaborative efforts involving rapid field detection of chemical warfare agents have been established with the United States Marine Corps***, Marine Corps Systems Command, CBIRF; ***the United States Army***, Soldier Biological Chemical Command, Medical Research Institute for Chemical Defense, Center for Environmental Health Research; ***the Federal Bureau of Investigation***; and, ***internationally*** with the Defence Research and Development Canada - Suffield, and the DSO Laboratory Singapore. During 2003, the Division published three peer-reviewed manuscripts, seven editor-reviewed manuscripts, and two books.

The Division of Environmental and Occupational Health: Occupational Ergonomics Concentration. Recognizing the importance of occupational musculoskeletal injuries among military personnel and in response to the Army's request for specialty training in occupational ergonomics within the Master of Public Health (MPH) Program, a new area of concentration was established, the Occupational Ergonomics Concentration in the Department of Preventive Medicine and Biometrics Master of Public Health Program. The first student entered this program in July of 2002, and graduated, in June of 2003. The Occupational Ergonomics Program is the ***only*** established graduate-level injury prevention program in the Department of Defense.

The Division of Tropical Public Health. The Division of Tropical Public Health welcomed **Major Michael Sardelis** to the faculty. Major Sardelis joined the Division from the United States Army Medical Research Unit in Kenya, where he was the Chief of the Department of Entomology. In Kenya, he studied the transmission dynamics of malaria in the Lake Victoria Basin Region, examined the distribution and bionomics of potential dengue vectors in small coastal towns, and elucidated vector-related factors in the transmission cycle of African Tick Bite Fever, in the Masai Mara. Major Sardelis is a USU alumnus, Class of 2001, whose dissertation research focused on the ability of two non-indigenous mosquito species to change the field ecology of arboviruses of public health importance in the mid-Atlantic Region of the United States.

In the Division of Tropical Public Health, **Donald R. Roberts, Ph.D., Professor, Professor USU SOM Department of Preventive Medicine and Biometrics**, continues several lines of funded research, including a National Institutes of Health/National Science Foundation research program, in Belize, on assessing the impact of anthropogenic environmental change on malaria and malaria vector ecology, a NASA-funded research program to apply geographic information systems (GIS) and remote sensing technologies to the study of vector-borne diseases, and an investigation of malaria isolates from natural populations of mosquitoes in Northern Virginia.

The ***Diploma Course in Clinical Tropical Medicine and Traveler's Health*** graduated nine military and civilian physicians, during 2003. This intensive, 13-week course, one of only 12 worldwide, consists of eight graduate courses and prepares health care providers to diagnose, treat, and prevent tropical diseases globally. Graduates are eligible to sit for the certificate examination offered by the American Society of Tropical Medicine and Hygiene.

The First Fellow in the Occupational and Environmental Medicine Residency Program. **Major Michael E. Parker, MC, USA**, joined the Occupational and Environmental Medicine Residency as its first Fellow. Major Parker completed his Army-sponsored General Preventive Medicine Residency at the Harvard School of Public Health and the Madigan Army Medical Center. His post-residency assignment was forward deployed in Iraq with a Civil Affairs Battalion from Fort Bragg, North Carolina. He is the first Army Preventive Medicine Officer to return for an additional year of Occupational and Environmental Medicine training, as part of a new Army training initiative to allow cross training between Preventive Medicine and Occupational physicians. This will make him eligible to take the American Board of Preventive Medicine (ABPM) Examination in the subspecialty area of General Preventive Medicine and Public Health. The current residency status is: four officers in the 2003-2005 (PGY-II); five officers in the 2002-2004 (PGY-III); and one officer in the 2003-2004 (PGY-IV); and, five officers are projected to begin, in July of 2004.

The Occupational and Environmental Medicine Residency Advisory Committee. Doctor William N. Yang assumed the Chair of the Occupational and Environmental Medicine Residency Advisory Committee (OEMRAC), during 2003. This residency is one of over 60 physician training programs in the National Capital Consortium (NCC). Doctor Yang is employed by the Emory Clinic, in Atlanta, Georgia, and serves primarily with Coca Cola Inc. providing Occupational Medicine clinical training in Atlanta and consultative services worldwide for Coca Cola, Inc. He was invited to speak at the International Meeting of the American College of Occupational and Environmental Medicine on

water sources and bioterrorism. Doctor Yang will oversee two meetings per year of the OEMRAC, which provides oversight and guidance to the residency staff. The OEM Program had six graduates in June of 2003: three Army officers; one Navy officer; one Air Force officer; and, one Canadian officer. During the Summer of 2003, all six graduates were recommended to the American Board of Preventive Medicine (ABPM) as being ready to be considered for eligibility for taking the Board Examination in the ABPM Specialty Area of Occupational and Environmental Medicine, in November of 2003, with results available, in early 2004.

Critical Decision Making for Medical Executives: Keys to Improving Population Health. ***Critical Decision Making for Medical Executives*** is a Military Health System (MHS)-relevant, actively managed course with a continuously updated curriculum. The Course Director regularly updates the course material with current year National Defense Authorization Act language, funding levels, regulatory changes, and the results of on-going management pilot programs. The ***USU Executive Skills Course*** exclusively reserves an entire day for hands-on experience with tools such as *TOC*, *PHOTO*, *CHCSII*, and other service and region specific decision support tools. The focus of the course is to equip health care professionals with the knowledge and tools needed to integrate clinical and business decisions to improve health care delivery and population health. The course is delivered using a combination of distance learning, traditional lectures and discussions, and a hands-on computer laboratory. It covers the following competencies as prescribed by the Joint Medical Executive Skills Group: Decision Making; Leadership; External Accreditation; Financial Management; Information Management & Technology; Personal & Professional Ethics; Organizational Ethics; Quality Management; Clinical Investigation; Integrated Health Care Delivery Systems; Quantitative Analysis; Outcome Measurements; and, Patient Safety. In 1993, a Joint Defense Task Force identified 34 competencies required of a military health care professional in order to command a DoD medical facility. In 1996, that number was increased to 40 competencies, following a census survey of health care management organization commanders and, that is the basis for the Executive Skills Core Curriculum. Since that time, the military medical departments have focused their efforts on assessing the executive skill needs of their medical leaders, developing training programs and offering courses to satisfy the jointly developed core curriculum. These activities are collectively accomplished under the purview of the Joint Medical Executive Skills Program (JMESP) in accordance with DoD Instruction 6000.15. The USU offers the ***Medical Executive Course*** to ensure that senior military health care executives possess the requisite professional administrative knowledge and skills to efficiently and effectively manage the Military Health System.

Individual Contributions.

Deborah C. Girasek, MPH, Ph.D., Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics, co-authored an article with **Doctor Mark Wegner** (a former USU MPH student) on the readability of *Child Safety Seats*, which appeared in the journal, Pediatrics. The article received wide-spread media attention and resulted in the President-Elect of the American Academy of Pediatrics sending a commentary on the problem to pediatricians across the Nation. She was also invited to serve on the Guest Editorial Review Board for a special issue of the American Journal of Health Education, which was devoted to injury prevention. And, Doctor Girasek published an article exploring bereaved parents' interest in taking part in injury prevention campaigns in the journal, Death Studies.

Doctor Girasek also served on a Grant Review Panel for the Centers for Disease Control's National Center for Injury Prevention and Control.

(See Section II, RESEARCH CENTERS AND PROGRAMS, The USU School of Medicine Department of Preventive Medicine and Biometrics, Graduate Education in Preventive Medicine and Public Health, and the Centers for Preventive Medicine and Public Health, and Section IV, for additional information on the Department.)

Psychiatry - School of Medicine.

Individual Contributions.

Robert J. Ursano, MD., Professor and Chair, USU SOM Department of Psychiatry, Director, USU Center for the Study of Traumatic Stress (CSTS), appeared in the New York Times, USA Today, and The Washington Post and was interviewed by National Public Radio, during 2003, regarding traumatic stress associated with war and captivity. He also published a book review in the New England Journal of Medicine on November 6, 2003. In addition, Doctor Ursano served on the Institute of Medicine Committee on Responding to the Psychological Consequences of Terrorism. His leadership was instrumental in developing and advancing a national strategy that integrates mental health into a public health paradigm for terrorism management and response. This new model is of substantial consequence as it demonstrates how disaster psychiatry, a singular specialty significantly contributed to by the forging of military medicine and USU SOM faculty health care leaders in the 1980's, has become a recognized, valued and integral component for strengthening homeland security in this Century. The Committee's recommendations have been published in Preparing for the Psychological Consequences of Terrorism. A Public Health Strategy, the National Academies Press, Washington, D.C., 2003. Also during the past year, Doctor Ursano had an article published in The Lancet, *Prisoners of War: Long-Term Health Outcomes*, Volume 362, December 2003.

Lieutenant Colonel Charles C. Engel, Jr., MC, USA, Associate Professor, USU SOM Department of Psychiatry, Director, Center for Deployment Health and Assistant Chair for Research, is studying improving behavioral and rehabilitative elements of primary care, particularly in the occupational health care setting. Doctor Engel has multiple projects focusing on medically unexplained physical symptoms in the veteran population, primary care aspects of environmental risk communication, and evidence-based clinical practice guideline development and implementation. His research is funded by the National Institutes of Health, the Centers for Disease Control, the Department of Defense, and the Department of Veterans Affairs. Doctor Engel's work has been widely published in such highly respected medical journals, such as the Journal of the American Medical Association, the American Journal of Psychiatry, and Controlled Clinical Trials.

Carol S. Fullerton, Ph.D., Research Associate Professor, USU SOM Department of Psychiatry, Scientific Director of the Center for the Study of Traumatic Stress (CSTS), supervised the education of two CSTS International Disaster Psychiatry Fellows from Italy and the Defense University of Japan, as part of an international training program, which, over the past ten years, has brought ten participants from Japan, Singapore, Greece, Georgia, and Israel to the CSTS.

Doctor Robert Gifford, Research Psychologist, USU Center for the Study of Traumatic Stress, USU SOM Department of Psychiatry, is conducting a review of mental health operations during Operation Iraqi Freedom. He submitted a proposal for collaboration between USU and the National Committee for Employer Support of the Guard and Reserves to study the stresses on Reserve Component

members, who are called to active duty. Protocols for this collaboration were being developed, during 2003. Doctor Gifford was the former Deputy Director of the Walter Reed Army Institute of Research, who also developed a strategic plan for workplace management of mass violence.

CAPT Thomas Grieger, MC, USN, USU SOM Class of 1987, Associate Professor, USU SOM Department of Psychiatry, was appointed Assistant Chair for Research and Assistant Chair of Graduate Medical Education, during 2003. CAPT Grieger is coordinating mental health surveillance on soldiers wounded during Operation Enduring Freedom and Operation Iraqi Freedom. In addition, Doctor Grieger is currently conducting research on the long-term psychological effects of the 9/11 terrorist attack on members of the Pentagon staff.

Colonel Molly J. Hall, MC, FS, USAF, Associate Professor, USU SOM Department of Psychiatry, Director, Bioterrorism Education Project, Assistant Chair for Medical Student Education, has conducted extensive educational consultation on the psychological impact of disaster, terrorism and bioterrorism. She co-authored multiple articles on the psychological impacts of bioterrorism and provided teaching and training to multiple State and Federal agencies, including the Central Intelligence Agency, the Maryland State Office of Public Health Preparedness, and the Arizona State Emergency Management Authority. She provided ongoing consultation to the Maryland, Virginia, Washington D.C. Council of Government Bioterrorism Task Force, and The Animal Services Committee. Doctor Hall and members of the Center for the Study of Traumatic Stress (CSTS) wrote the guidance on mental health support to the Veterinarian Medical Emergency Assistance Teams as part of the National Medical Defense System (*Psychological Impact of the Animal-Human Bond in Disaster Preparedness and Response: Guidance for Veterinary Medical Assistance Teams*, VMAT Field Manual, FEMA/ National Medical Defense System, in press, 2004.) Also, during 2003, Doctor Hall worked with the Italian Embassy Scientific Attache to conduct the first trans-Atlantic educational initiative between the United States and Europe to combat bioterrorism. Twin conferences in Washington, D.C. and with Italy's NIH counterpart, introduced public health issues of bioterrorism to the European community, which employed a spacebridge to further achieve the distance learning objectives of USU. And, in February of 2004, Doctor Hall was recognized by Representative Steve Israel as a Local Legend from New York; this is an honor bestowed upon women physicians who have demonstrated commitment, originality, innovation, or creativity in their field of medicine. The Local Legend recognition is a companion project to an exhibition created by the National Library of Medicine, entitled, *Changing the Face of Medicine: Celebrating America's Women Physicians*.

Captain Derrick A. Hamaoka, USAF, MC, Instructor, USU SOM Department of Psychiatry, joined the Department, during 2003. He was previously assigned at the Wilford Hall Medical Center, where he served as the Chief Resident of the USAF Combined Psychiatry Residency Program with the University of Texas, San Antonio.

Lieutenant Commander Benjamin W. Jordan, MC, USN, Assistant Professor, USU SOM Department of Psychiatry, joined the Department, during 2003. He completed his Psychiatry Residency

Training at the National Capital Consortium Psychiatry Residency Program; and, he is also a board-certified Family Practice Physician.

He Li, M.D., Ph.D., Assistant Professor, USU SOM Department of Psychiatry, one of the Department's biological psychiatry researchers, published major findings in the Journal of Neuroscience, during 2003. This work advanced the basic neuroscience of emotional memory and fear and the role of the amygdala in post traumatic stress disorder. Currently, Doctor Li has a grant through the United States Army Medical Research Acquisition Activity, from 2000 through 2005, in the amount of \$950,490, entitled, *Neuroplasticity and Calcium signaling in Stressed Rat Amygdala*.

Lieutenant Commander Lisa McCurry, MC, USN, Assistant Professor, USU SOM Department of Psychiatry, and Brian Crowley, M.D., Adjunct Associate Professor, USU SOM Department of Psychiatry, were both selected by the American Psychiatric Association to receive the Nancy C.A. Roeske, M.D., Recognition for Excellence in Medical Student Education Award, during 2003.

Colonel Ann E. Norwood, USU SOM Class of 1981, Associate Professor and Associate Chair of the USU SOM Department of Psychiatry, until May of 2003, accepted a position as the Senior Advisor for the Public Health Risk Communication Office of the Assistant Secretary for Public Health Emergency Preparedness at the Department of Health and Human Services. She continues to work closely with the USU Center for the Study of Traumatic Stress (CSTS) on multiple projects and to serve as the Director of the Disaster Preventive Psychiatry Fellowship.

Doctor Elizabeth Osuch, Assistant Professor, USU SOM Department of Psychiatry, has focused her research on the study of neurobiological and behavioral effects of exposure to extreme environmental stress. This includes functional and brain imaging studies in traumatized populations, such as people who have been in motor vehicle collisions. It also includes a major, new national initiative to develop a postmortem brain tissue collection for the study of the pathology of exposure to extreme stress.

Colonel E. Cameron Ritchie, MC, USA, Associate Professor, USU SOM Department of Psychiatry, was a student in the USU SOM Master of Public Health Degree Program, during 2003. Doctor Ritchie was quoted in the October 2003 edition of Ladies Home Journal in an article, *When Jenny Comes Marching Home*. The article discussed issues facing women in combat. Doctor Ritchie and her colleagues also published *Breastfeeding in the Military. Part I: Information and Resources Provided to Servicewomen*, and *Breastfeeding in the Military. Part II: Resource and Policy Considerations*, in Military Medicine, October 2003, 8(10), pages 807-816. Under the mentorship of USU CSTS faculty, Doctor Ritchie established an international presence working in Israel, Egypt, and Baghdad with State Department psychiatrists to improve mental health assessment and interventions following terrorism intrinsic to the Iraqi conflict. She coordinated a planning meeting held at USU with representatives from

the State Department, the National Institutes of Mental Health, Substance Abuse and Mental Health Services Administration, the World Bank, and non-governmental relief organizations on the DoD mission and objectives for assisting in rebuilding the Iraqi Mental Health System.

Nancy T. Vineburgh, Assistant Professor, USU SOM Department of Psychiatry, an expert in corporate health promotion and public education of mental health, directed the creation of an Office of Public Education and Preparedness (OPEP), under the USU Center for the Study of Traumatic Stress (CSTS), in June of 2003. The new office is charged with identifying programs and partnerships that will advance CSTS and USU's visibility, expertise, and funding for preparedness programs, especially in the workplace. OPEP and CSTS submitted a SAMHSA Knowledge Dissemination Grant to spearhead a national conference for workforce development of disaster response. A Task Force was formed to guide the conference, including Fortune 100 employers, such as Chevron, Texaco, Dupont, Citigroup, and industries designated by the Department of Homeland Security as high risk, including major organizations in sports and entertainment, energy, and agriculture. Assistant Professor Vineburgh established a working relationship with the Public Education Office of Homeland Security. She also attended a Global Symposium on Workplace Mental Health at the United Nations' International Labour Organization, held in Geneva, Switzerland, in October of 2003, to promote awareness of the CSTS role in organizational education and consultation.

(See Section II, RESEARCH CENTERS AND PROGRAMS, USU SOM Department of Psychiatry and the Center for the Study on Traumatic Stress, for additional information on the faculty of the Department of Psychiatry.)

Radiology and Radiological Sciences - School of Medicine.

Departmental Activities.

In October of 2002, the Board of Regents approved the request to *change the name of the Department of Radiology and Nuclear Medicine to the Department of Radiology and Radiological Sciences*. The name change was requested by the faculty of the Department to better reflect their diverse interests, talents, and research efforts in the Radiological Sciences. The name-change was incorporated, throughout 2003.

Radiological Sciences Division. Under the leadership of **CAPT Jerry Thomas, MSC, USN (Retired), Assistant Professor, USU SOM Department of Radiology and Radiological Sciences**, the Radiological Sciences Division continued to grow and provide advances in the area of digital image display and digital mammography, during 2003. The work to improve the diagnostic accuracy of medical image display systems and the development of quantitative methodologies for the evaluation of factors, which degrade diagnostic accuracy, has made substantial advances. A high speed diagnostic workstation, *TomoVIEW*, is being developed to display tomosynthesis images (i.e., slice and volume data) of the breast. This work is being done in conjunction with *ImageSMITHS*, in Germantown, Maryland.

The second generation tomosynthesis mammography imager, being developed in conjunction with General Electric Global Research, is progressing on schedule. This next generation machine will be able to visualize volume elements of breast tissue as small as 500 x 100 x 100 microns. Additionally, quantitative techniques, for determining the composition of these volume elements, have been completed. It is anticipated that the clinical prototype will be available for testing at the National Naval Medical Center, in early November of 2004.

Recently, **Commander David A. Schauer, MSC, USN, Assistant Professor, USU SOM Department of Radiology and Radiological Sciences**, left USU to become the Executive Director of the National Council on Radiation Protection and Measurements. His EPR tooth dosimetry research has been assimilated into the research program managed by CAPT Jerry Thomas. This very important work will soon provide a transportable EPR machine capable of *in vivo* measurements of dose; the anticipated lower limit of measurement is 50 rads. The device will provide a tool to evaluate both casualty radiation doses, as well as accumulated doses over a worker's lifetime.

Individual Contributions.

James G. Smirniotopoulos, M.D., Professor of Radiology and Radiological Sciences, Neurology, and Biomedical Informatics, and Chair, Radiology and Radiological Sciences, received approval for providing online continuing medical education (CME) and continuing nursing education (CNE) for his *MedPix* Program. The *MedPix* Program takes advantage of the *MedPix* Radiology Teaching File and provides one hour of Category 1 CME or 1.2 hours of CNE for every four *MedPix*

cases. USU now supports all of the DoD Diagnostic Radiology Residency Programs, by administering and hosting a common teaching file shared by all. *MedPix* has over seven thousand registered users, although registration is not required for simple case review. During 2003, the *MedPix* database was upgraded to include a secure webserver for log-in and user administration. *MedPix* has delivered more than 11,206,663 pages since September 3, 2000; it is one of the longest running *Case of the Week* programs in the world.

Doctor Smirniotopoulos was appointed by **Doctor Winkenwerder, the Assistant Secretary of Defense for Health Affairs**, as the DoD Representative to the National Advisory Council for the National Institute of Biomedical Imaging and Bioengineering (NBIB) at the National Institutes of Health (NIH). In addition, Doctor James Zimble, President, USU, appointed Doctor Smirniotopoulos to Chair the USU Strategic Planning Committee. During 2003, the goals and priorities for the USU Strategic Plan were defined and approved by the USU Board of Regents; and, a website was established for dissemination and feedback to the USU community.

Doctor Smirniotopoulos was, once again, in charge of the *Neuroradiology Case of the Day* at the world's largest radiology meeting - The Radiological Society of North America (RSNA), which was held in December of 2003. In addition, Doctor Smirniotopoulos participated in nine CME courses around the country; and, he was a featured speaker in Jasper, Canada, for the Annual Meeting of the Alberta Society of Radiologists. He was also a Visiting Professor and a Grand Rounds Speaker at five major universities, during 2003.

Doctor Smirniotopoulos and his colleagues have begun a *Teach the Teachers* project, sponsored by an educational grant from the RSNA (\$50,000 per year for two years) to train six to eight African Radiologists in Tropical Imaging. This competitively chosen group will spend seven weeks at USU in classroom, small group, and independent study; they will then return to their home countries to *spread the word*.

USU Radiology now uses a web-based program for testing second-year medical students during their required course in ***Diagnostic Interpretation***. Between eight to ten quizzes are administered on-line and graded electronically, to include the electronic processing of the grades, which reduces paper consumption and transcription errors.

Colonel Tim Sanders, USAF, MC, Assistant Professor, USU SOM Department of Radiology and Radiological Sciences, and Radiology Consultant to the Air Force Surgeon General, joined the USU Department of Radiology and Radiological Sciences, during 2003. Doctor Sanders is a Musculoskeletal Radiologist and former Chair of Radiology at the Wilford Hall Air Force Medical Center.

Lorraine G. Shapeero, M.D., Associate Professor, USU SOM Department of Radiology and Radiological Sciences, was listed as one of America's Top Radiologists, 2002-2003. Doctor Shapeero was also an invited speaker at the International Skeletal Society, where she discussed her research on fast contrast-enhanced MRI for evaluating patients with soft tissue sarcomas, especially for their response to chemotherapy and long-term follow-up for recurrent disease. These tumors affect young adults, who

belong to the active duty population of the Uniformed Services. Doctor Shapeero also serves on the Board of Directors of the Association of University Radiologists and on the Executive Committee of the Alliance of Medical Student Educators in Radiology, both have a primary mission to improve and optimize teaching of radiology to medical students, throughout North America, in the uniformed and civilian sectors.

(See Section I, Informatics - An Expanding and Essential Component of Education in the Health Sciences, for additional information on the Department of Radiology and Radiological Sciences.)

Surgery - School of Medicine.

Departmental Background and Activities.

The ***USU Norman M. Rich Department of Surgery*** is comprised of a very talented, eclectic group of surgeons, who are involved in a variety of ways to provide extramural support for Clinical Services in the National Capital Area (NCA), and beyond. The faculty includes billeted Federal (civilian) and uniformed (active duty) officers, as well as, non-billeted members. The faculty can truly be described as *distinguished*. Members of the faculty have achieved prominence in surgery; and, they are nationally and internationally recognized as surgical leaders. They have served as Chairmen of Surgery in a variety of hospitals; they have also served as Hospital Commanders; and, they have been Program Directors. One recently-retired member of the faculty was formerly the Dean of the College of Medicine at the University of Virginia. Another active member was formerly the personal physician to Ronald Reagan, Former President of the United States. The faculty has been responsible for writing and publishing extensively. In addition, the faculty actively supports a number of professional organizations; and, members of the faculty serve, or have served, in leadership positions in many of those organizations. The faculty, therefore, is uniquely able to serve as a most positive role model for medical students who are interested in pursuing the fine art and science of surgery. Together, the faculty is involved in clinical support, teaching, research, readiness, and administrative support.

Clinical Support. Faculty members are credentialed at a variety of Federal and civilian hospitals in the NCA and elsewhere. They see and treat patients, help to conduct clinics, and are engaged in all forms of inpatient and outpatient care. Selected examples of clinical activities include conducting endoscopic clinics, doing endoscopic surgery, manning breast clinics, chairing cancer committees, and performing endocrine surgery. It is estimated that the clinical activities of the Department's surgical faculty account for over \$3,280,000 in savings to the Nation each year, as cost avoidance generated for the Department of Defense; the Department of Surgery far outstrips all other USU SOM Departments in providing clinical services at the Military Treatment Facilities. The faculty participates in clinical activities in a variety of ways. At times, they are present in clinic as consultants to residents and students. At other times, they have primary responsibility for patients, with a busy in-patient service to manage. The Department has several faculty members who spend most of their clinical time at a local *Level I* trauma center, MedStar; they have been most involved there, seeing and treating large numbers of trauma victims from the Washington Capital Area. Because of their presence at MedStar, the Department is able to rotate third-year medical students to the site, which gives them initial trauma-care experience. Also, residents from the Department's military centers go to MedStar for trauma experience. Several faculty members have appointments at the National Institutes of Health (NIH), and one active faculty member is also employed at the Department of State.

Teaching. Medical education is a life-long process. In developing the Department's educational philosophy, primary consideration is given to curriculum, content and the amount of knowledge and skills that must be learned. In addition, the specifics encountered in a military-oriented medical school and the methods of transmitting this information are blended into the traditional medical school knowledge

base. The overall purpose of the surgical education program is to help the students to become life-long learners, able to apply knowledge to chosen careers in surgery, or to relate learned surgical knowledge, in a comprehensive manner, to other chosen career fields. This is accomplished by providing opportunities to learn what is known and to identify that which is unknown. In addition, students are encouraged to acquire skills in order to critically appraise, honestly debate, and respectfully disagree on clinical and technological matters. The developed curriculum includes progressive clinical knowledge with the integration of basic science and translation research, which offers a comprehensive and balanced learning environment. The *Socratic* method of learning is presented in a collegial and supportive manner, with curricular emphasis on the development of problem-solving and critical thinking. Learning gaps are identified, highlighted and discussed in order to stimulate faculty motivation and refocus on current teaching methods.

Faculty members are first, and foremost, teachers. They are teaching at every level, including the first-year *Anatomy Course*, the third-year *Clinical Rotations*, the fourth-year *Subspecialty Rotations*, the *Internship and Residency Rotations*, and there is some faculty participation with *Post-Residency Fellowships*. Several faculty members have volunteered to be in mentoring programs for first and second-year medical students. Some faculty members are also mentoring residents in research projects. The first-year *Anatomy Course* is expertly led by a faculty member of Surgery, **Doctor Al Seyfer**. Approximately half of the instructors for this course have backgrounds in surgery. This particular course has served as a perfect opportunity to begin to explain the fine art and science of surgery to the students and to relate anatomy to clinical conditions. Because of this early engagement of medical students, the Department is able to see an increase in those who wish to choose surgery as their specialty, following graduation. Many of the faculty have participated, as well, in postgraduate courses, taught at both USU and outside of the University, including an extensive program of international courses. These courses have included *Videoendoscopy*, *Sentinel Lymph Node Biopsy*, *Emerging Surgery Technology*, *Surgical Ultrasound*, and *Complex Laparoscopy*, etc. A recently instituted *Course on Emergency War Surgery* has been most successful in preparing Army surgeons, in Europe, for deployment to Iraq; and, the course has been taught in Wuerzburg and Heidelberg by **Doctors Hutton, Minken, Burris, and McHale**. This latest course continues the Department's tradition of taking education to uniformed physicians overseas, and by doing so, greatly enhancing their opportunities to keep abreast of new techniques. The USU National Capital Area Medical Simulation Center (SIMCEN) is headed by a member of the surgery faculty; he is recognized as a national leader in teaching through models and simulation. The Department continues to receive high interest, from outside of USU, in its educational endeavors at the SIMCEN and frequently welcomes international visitors. Such diverse topics as robotics, haptics, telemedicine, virtual reality, and computerization of medicine are addressed at the SIMCEN. The SIMCEN is where each third-year medical student is exposed to general surgery, beginning with the first day of the third-year *General Surgery Rotation*. Each student is taught to do a surgery history and physical through the use of actors, videotapes and immediate feedback techniques; each is exposed to ultrasound principles, bronchoscopy, knot tying, resuscitation, and evaluation of the acute abdomen, etc. Following the first day at the SIMCEN, the third-year student has two days of hands-on surgery laboratory training, using a porcine live model under general anesthesia. The first day involves the abdomen, with a variety of procedures (splenectomy, gastrotomy, pyloroplasty, small bowel resection, and anastomosis, etc.); and, during the second day, the student is taught to insert a chest tube, perform a thoracotomy, a left pneumonectomy, and repair the aorta, etc. The faculty members all participate in this important three-day introduction to surgery.

Representing both the School of Medicine (SOM) and the University, the Department of Surgery has been actively involved in the development of the *Diploma in the Medical Care of Catastrophe* under the Auspices of the Apothecaries of London. This multi-disciplinary activity supports the SOM Dean's emphasis that the faculty should be a Community of Scholars. The examination is held at USU each Spring; until last September, the only recognized location, outside of London, for the examination. There are 33 Diplomats at USU. Related to the Anglo-American Exchanges and assisted by **Professor James Ryan of London**, who holds the first International Professorship at USU, there exists a Memorandum of Understanding between the Royal College of Surgeons of England and the Royal Defence Medical College with the USU Department of Surgery to conduct ***Definitive Surgical Trauma Skills***, with an average of three courses each year, in London, to prepare Military Surgeons for deployment to Afghanistan and Iraq.

Research. The faculty is involved in a number of large and important research projects, some of which have recently borne fruit in actual clinical application in wartime scenarios. The Department has been responsible for the development of novel, new products, which stop bleeding on the battlefield; and, which have been directly responsible for the saving of the lives of soldiers in Iraq. Many of the soldiers in Iraq are currently carrying ***QuikClot***, which was developed by several faculty members, in the USU Department of Surgery. Also, there are two large projects for the detection and treatment of breast cancer, one based at the Bethesda National Naval Medical Center (NNMC) and the other at the Walter Reed Army Medical Center (WRAMC), both are staffed and supported by the Department's faculty members. These large and sophisticated projects are Federally funded and involve clinical patient care, basic science research, and genetics with dedicated laboratories and suites at Bethesda and WRAMC, offering excellent patient access and care. In addition, there is an internationally recognized and extremely successful program originating at the Walter Reed Army Medical Center, which addresses prostate cancer, the ***Center for Prostate Disease Research (CPDR)***; the CPDR is administered and staffed by faculty from the Department of Surgery. This effort to address prostate disease is Federally funded and has earned recognition by the national media for the Department and its faculty. The number and quality of papers produced by the CPDR is unparalleled. The CPDR has a large, separate facility located in Rockville, Maryland, as well as a presence at WRAMC, NNMC, and USU. In other areas, as well, faculty members have achieved distinction, throughout the Nation, as leaders in research in their respective fields. **Doctor William Bolger**, for example, is known in sinus surgery for a procedure, which he invented, called *bolgerization*; he is a reviewer for five *ENT* journals, a member of a national *ENT* committee, and a member of the Board of Directors of the American Rhinologic Society. Besides the above-mentioned activity, other important clinical trials are being conducted by faculty members at the various hospitals, especially in colon cancer and venous diseases, etc.

Readiness. The faculty of Surgery is fully committed to ensuring and supporting Military Readiness, in a variety of ways. Some active-duty members have recently been deployed. Most faculty members are continuing to teach, or direct, ***Advanced Trauma Life Support (ATLS) Courses***. **Doctor David Burris, United States Army, is the Chief of the Military Region (XIII) of the American College of Surgeons Committee of Trauma (ACS-COT)** and oversees all ATLS in the military. **Doctor Mark Bowyer is the Air Force State Chairman in the AXS-COT and oversees ATLS for the Air Force and at USU.** ATLS teaches the medical students about proper trauma care and prepares them to go to the field and save lives. The faculty have been at the forefront of new and innovative ways to teach

ATLS, using mannequins instead of animal models, through a very successful and on-going program. The Department averages about one ATLS Course every two, to three, months at USU. In addition, faculty members, at times, help to teach ATLS at outside courses, such as at NNMC and for other units deploying to combat situations.

Administrative Support. Faculty members have been most active in providing administrative services to the University. The Department has faculty members on the following USU committees: Admissions; Promotions; the Institutional Review Board; Curriculum; the Faculty Senate; and, the USU Space Committee. Currently, the Department has four members recently elected to the Faculty Senate, to include the Secretary. The Department of Surgery has faculty members who have conducted External Reviews of local residencies, as coordinated through WRAMC. Many of the Department faculty spend considerable time interviewing potential medical students; and, they work closely with the Promotions Committee to ensure that USU enrolls only the best and the brightest students. Faculty members continue to serve on search committees, to include those charged with the selection of Department Chairs. These administrative support roles are dynamic and changing; and, it is impossible to list every way in which the Department is involved. Suffice it to say, that on all fronts, the Department of Surgery is totally supportive of the USU community and continues to enthusiastically participate in the entire spectrum of research, teaching, clinical endeavors, medical readiness, administrative support and community service.

Individual Contributions.

Colonel David Burris, MC, USA, Associate Professor and Interim Chair, USU SOM Department of Surgery, received invitations to serve as a Visiting Professor at prestigious universities, including Harvard and Stanford. He was also the Key Speaker at the Massachusetts Chapter of the American College of Surgeons. Doctor Burris has assumed the responsibility for the completion of the Combat Surgical Manual, which replaces the former NATO Handbook. Doctor Burris is also the Chief Editor of the *Festschrift Papers* to be published in the World Journal of Surgery.

Norman M. Rich, M.D., FACS, Professor and Founding Chair, USU SOM Department of Surgery. The 2003 National Safety Council Surgeon's Award for Services to Safety was presented, this year, to **Norman M. Rich**, who, as the citation specifies: *for 35 years has devoted his professional life to the prevention of battlefield injuries and mortality through research, education of students, residents, and surgeons, and through distinguished military and public services as the Founding Chair of Surgery at the Uniformed Services University of the Health Sciences.* In addition, Doctor Rich delivered the Stanford University School of Medicine 4th Annual Emile F. Holman Lecture in Surgery, *Vascular Trauma: Reflections and Projections*, on March 7, 2003. Doctor Rich also delivered the Loyal Davis Lecture at North-Western and the Hunter Holmes McGuire Lecture at the Medical College of Virginia. Additionally, he received the Carol J. Johns Medal, during the 2003 USU Commencement Exercises.

Colonel Michael R. Marohn, USAF, DO, FACS, Associate Professor, USU SOM Department of Surgery, received the United States Air Force Society of Air Force Clinical Surgeons Excalibur Award for 2003.

Doctor Hasan Alam, M.D., FACS, Assistant Professor, USU SOM Department of Surgery, USU Trauma Readiness Research Institute, was inducted into the Society of University Surgeons, during 2003. In addition, during April of 2003, Rear Admiral Robert D. Hufstader, Jr., the Medical Officer of the Marine Corps, honored the USU faculty and staff who tested the nemostatic agent, *QuikClot*, so that it could be included as a lifesaving item in Marine aid-packs. In a small ceremony at USU, on April 16, 2003, Admiral Hufstader recognized Colonel David Burris, Interim Chair, USU SOM Department of Surgery, and Doctor Hasan Alam, Principal Investigator, for their thoroughness and speed in testing a critical product, prior to its use on the battlefield.

David C. Wherry, M.D., Professor, USU SOM Department of Surgery. The Philippine Chapter of the American College of Surgeons presented a Certificate to **David C. Wherry** as a *MOST DISTINGUISHED FELLOW*, in 2003.

John F. Potter, M.D., Professor, USU SOM Department of Surgery, Director, United States Military Cancer Institute, was designated by the Deputy Assistant Secretary of Defense for Clinical and Program Policy, as the DoD Representative to the National Dialogue on Cancer (NDC). The NDC consists of a group of delegates from academia, government, and the private sector; it is committed to advancing the cause of cancer research, prevention, and patient care.

ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE
Publications Summary
1999-2003

Journal Supplements

2002

Seed TM, Blakely WF, Knudson GB, Landauer MR, McClain DE (eds) (2002) Proceedings of the International Conference on Low-Level Radiation Injury and Medical Countermeasures, Bethesda, MD, November 8-10, 1999. Military Medicine, 167(2). Foreword and preface.

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